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(71)Applicant : CYTEC:KK
IIDA DENSHI SEKKEI KK

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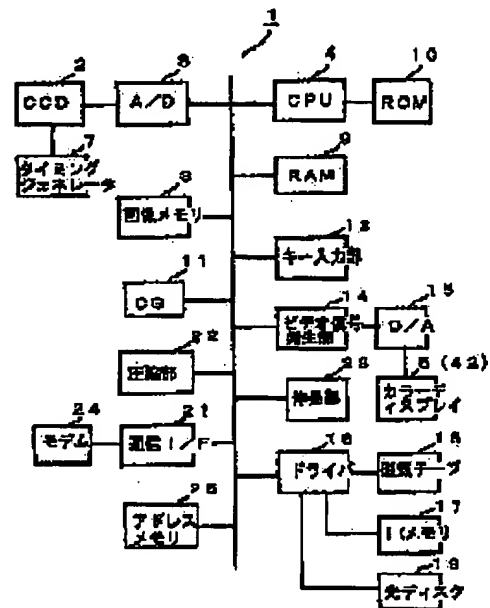
(72)Inventor : SAITO SHUICHI
IIDA KATSUHIRO

(54) DIGITAL STILL CAMERA AND DIGITAL VIDEO CAMERA

(57)Abstract:

PROBLEM TO BE SOLVED: To enable a digital still camera and a digital video camera to communicate information via a communication channel, such as internet for easily sending/receiving even if it is urgent information to/from a required opposite party.

SOLUTION: Image data which are picked up by a CCD image-pickup element 2 of this camera are stored in a RAM 9, from which the data are, e.g. compressed, and the compressed data are stored in an image memory 3. The image data stored in the image memory 3 in this way are data for, e.g. a disaster or the like that have been photographed and outputted to a communication network such as the internet via a communication interface 21 through a transmission command signal entered via a key entry section 12. On the other hand, other digital still camera 1 which receives the image data once stores the received image data to the RAM 9 and displays the image of the data on a color display device 5 as required. A system is configured in this way to conduct the transmission reception processing of the image data directly between the digital still camera 1 and the other digital still camera 1.



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CLAIMS

[Claim(s)]

[Claim 1] The digital still camera characterized by having an image pck-up means, the image memory which memorizes the image data a photograph of was taken with this image pck-up means, an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[Claim 2] The aforementioned display means is a digital still camera according to claim 1 characterized by carrying out the synthetic display also of the alphabetic data with image information.

[Claim 3] The picture image which the aforementioned image pck-up means picturizes is a digital still camera according to claim 1 characterized by being a picture image at the time of a calamity.

[Claim 4] The picture image which the aforementioned image pck-up means picturizes is a digital still camera according to claim 1 characterized by being handwriting alphabetic information.

[Claim 5] The aforementioned input means is a digital still camera according to claim 1 characterized by inputting the image data outputted from a computer.

[Claim 6] The aforementioned output means is a digital still camera according to claim 1 characterized by being another field to the mainframe of a camera.

[Claim 7] The aforementioned communication network is a digital still camera according to claim 1 characterized by being internet.

[Claim 8] The network system characterized by to provide the 2nd digital still camera which has the 1st digital still camera which has an image pck-up means, the image memory which memorizes the image data a photograph of was taken with this image pck-up means, and an output means to output the image data memorized to this image memory to a communication network, an input means input the image data supplied through a communication network, and a display means display the image data inputted from this input means.

[Claim 9] The network system characterized by to provide the computer which has the digital still camera which has an image pck-up means, the image memory which memorizes the image data a photograph of was taken with this image pck-up means, and an output means output the image data memorized to this image memory to a communication network, an input means input the image data supplied through a communication network from this digital still camera, and a display means display the image data inputted from this input means.

[Claim 10] The digital camcorder characterized by having an image pck-up means, the image memory which memorizes the image data a photograph of was taken with this image pck-up means, an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[Claim 11] The aforementioned display means is a digital camcorder according to claim 10 characterized by carrying out the synthetic display also of the alphabetic data with image

information.

[Claim 12] The picture image which the aforementioned image pck-up means picturizes is a digital camcorder according to claim 10 characterized by being a picture image at the time of a calamity.

[Claim 13] The picture image which the aforementioned image pck-up means picturizes is a digital camcorder according to claim 10 characterized by being handwriting alphabetic information.

[Claim 14] The aforementioned input means is a digital camcorder according to claim 10 characterized by inputting the image data outputted from a computer.

[Claim 15] The aforementioned output means is a digital camcorder according to claim 10 characterized by being another field to the mainframe of a camera.

[Claim 16] The aforementioned communication network is a digital camcorder according to claim 10 characterized by being internet.

[Claim 17] The network system characterized by to provide the 2nd digital camcorder which has the 1st digital camcorder which has an image pck-up means, the image memory which memorizes the image data a photograph of was taken with this image pck-up means, and an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[Claim 18] The network system characterized by to provide the computer which has the digital camcorder which has an image pck-up means, the image memory which memorizes the image data a photograph of was taken with this image pck-up means, and an output means to output the image data memorized to this image memory to a communication network, an input means input the image data supplied through a communication network from this digital video, and a display means display the image data inputted from this input means.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the digital still camera which can deliver and receive an information through communication networks, such as internet, and a digital camcorder.

[0002]

[Description of the Prior Art] In recent years, in connection with highly-efficient-izing of a personal computer, and improvement in the speed, use of internet has spread increasingly. Drawing 12 is drawing showing the use gestalt of the conventional general internet. Usually, it connects with the provider who contracted through the telephone line 51 connected to the personal computer 50, and internet accesses the homepage which he wishes through various circuits from there, and incorporates the information on a homepage. Moreover, in using electronic mail, a partner's IP address to wish is specified, for example, it transmits electronic mail through a provider.

[0003] On the other hand, in a personal computer 50 side, the information on the read homepage and the received electronic mail are displayed on a display. Moreover, in printing the received information, the printer 52 linked to the personal computer 50 is driven, and it performs printing processing. Especially electronic mail is widely used as substitution of a telephone, even if the other party is absence, it can send data and a file as a text, and it is a convenient system today.

[0004] Instead of the so-called conventional analog camera and a conventional 8mm video camera, the digital still camera which can process a photograph picture image and an image pck-up picture image with a personal computer, and the digital camcorder are marketed widely on the other hand recently. In such a digital still camera and a digital camcorder, the digital picture image a photograph of was taken can be easily processed by including the software of exclusive use in a personal computer. For example, the photograph picture image incorporated in the personal computer from the digital still camera can be displayed, and it can also print by the printer.

[Problem(s) to be Solved by the Invention] However, there are the following problems by a conventional digital still camera and a conventional digital video.

[0005] (b) First, with the digital still camera or the digital camcorder, the direct output of the picture image a photograph of was taken could not be carried out to internet, for example, image data was once incorporated in the personal computer, and the photography picture image was outputted to internet by the software of exclusive use. Therefore, the system which can access internet from a direct digital still camera or a digital camcorder is demanded.

[0006] (b) Moreover, at the time of calamities, such as an earthquake and a flood, it is required to perform urgent connection and a telephone and facsimile are used widely today. However, at the time of the above calamities, it has turned out experientially that it is useful to use communication networks, such as electronic mail by the personal computer. However, in the conventional system, in case data are transmitted and received to emergency, serious work is needed. That is, the picture image a photograph of was taken, for example with the camera etc. is incorporated in a personal computer at once, the content is processed, and transmitting

processing of image data is performed. For this reason, by the conventional technique, processing takes time, and reservation of equipments is also serious.

[0007] In order that this invention may solve the above-mentioned technical problem, it is the digital still camera which can carry out a direct file to internet, and a digital camcorder, and aims at offering the digital still camera which sends a picture image and alphabetic information to internet, and can send an information to a required partner easily even if it is emergency intelligence, and a digital camcorder.

[Means for Solving the Problem] The above-mentioned technical problem can be attained by offering the digital still camera which has the image memory which memorizes the image data a photograph of was taken with the image pck-up means and this image pck-up means according to invention according to claim 1, an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[0008] Namely, the digital still camera of this invention can connect to direct internet the image information a photograph of was taken with the digital still camera through a communication interface, and can send it to a partner's digital still camera or a personal computer. Moreover, the image data outputted from computers, such as a personal computer, can be directly received with the digital still camera of this invention, and it can also display on the display means of a digital still camera.

[0009] Thus, without using a computer by constituting, image information can also be transmitted and received only between digital still cameras, the image information from a computer can be further displayed on a digital still camera, and the image information outputted from the digital still camera can also be outputted to a computer.

[0010] A publication of a claim 2 materializes invention of the claim 1 above-mentioned publication, and the aforementioned display means is a configuration which carries out the synthetic display also of the alphabetic data with image information.

[0011] Thus, by constituting, a photograph of the handwriting character written to paper can be taken with a digital still camera, and it can also transmit to other digital still cameras, personal computers, etc.

[0012] The picture image in which a publication of a claim 3 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned image pck-up means picturizes it is a picture image for example, at the time of a calamity.

[0013] As a picture image at the time of a calamity, the photograph which accompanies site photographs, such as an earthquake and a flood, and this can be considered, and a photograph of the image information at the time of such a calamity is taken with the digital still camera of this example, and by passing to a communication network by the output means, above-mentioned image information can be received with the digital still camera which has communication facility like this example, and it can display on a display means. Moreover, the image information passed by the digital still camera at the communication network is also receivable with a personal computer.

[0014] Thus, by constituting, the image information at the time of a calamity can know easily with a digital still camera or a personal computer. Moreover, the information which changes every moment is known on real time, and moreover as equipments, emergency intelligence can be sent only with a digital still camera, or it can receive.

[0015] The picture image in which a publication of a claim 4 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned image pck-up means picturizes it is for example, handwriting alphabetic information.

[0016] By the image pck-up means, this example takes a photograph of the handwriting character written to paper, makes the handwriting character itself image information, and sends it to a communication network.

[0017] Thus, by constituting, for example, at the time of a calamity, the location and the content of damage are written by hand on paper that emergency should be told, as image information, it transmits, the thing of this handwriting information can be carried out, and emergency can be

reported very easily.

[0018] A publication of a claim 5 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned input means is the configuration of inputting the image data outputted from a computer.

[0019] That is, this example can receive directly the emergency intelligence outputted from computers, such as a personal computer, with a digital still camera, and can know emergency intelligence by displaying the concerned image information.

[0020] A publication of a claim 6 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned output means consists of the another field for example, to the mainframe of a camera.

[0021] Thus, by constituting, the digital still camera of this invention can be completed also by attaching the equipment which contains a communication interface in a digital still camera mainframe.

[0022] A publication of a claim 7 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned communication network is internet.

[0023] This example is a configuration which delivers and receives image information through internet as a communication network, by minding internet, it can send an information not only to domestic but to the whole world, for example, can be prompt, can pass a calamity information etc. in the world easily, and can desire effective practical use of immediate urgent assistance etc. The image memory which memorizes the image data which took a photograph of the above-mentioned technical problem with the image pick-up means and this image pick-up means according to invention according to claim 8, The 1st digital still camera which has an output means to output the image data memorized to this image memory to a communication network, It can attain by offering the network system possessing the 2nd digital still camera which has an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[0024] This example is a network system which receives the image information which transmitted from the digital still camera with other digital still cameras, and delivers and receives an information.

[0025] Thus, transfer of image information or alphabetic information can be performed by constituting, without requiring equipments, such as a personal computer. The image memory which memorizes the image data which took a photograph of the above-mentioned technical problem with the image pick-up means and this image pick-up means according to invention according to claim 9, The digital still camera which has an output means to output the image data memorized to this image memory to a communication network, It can attain by offering the network system possessing the computer which has an input means to input the image data supplied through a communication network from this digital still camera, and a display means to display the image data inputted from this input means.

[0026] This example is the network system which receives the image information which transmitted from the digital still camera with a personal computer, and can receive informations, such as emergency intelligence, also by computer.

[0027] Thus, by constituting, the user of computers, such as a personal computer, can also know emergency intelligence, such as a calamity outputted from the digital still camera, and can diffuse an information widely. The above-mentioned technical problem can be attained by offering the digital camcorder which has the image memory which memorizes the image data a photograph of was taken with the image pick-up means and this image pick-up means according to invention according to claim 10, an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[0028] Invention from the above-mentioned claim 10 to the last claim 18 is invention about a digital camcorder, and is the same as that of the above-mentioned digital still camera constitutionally.

[0029] Without following, for example, using a computer, image information can also be

transmitted and received only between digital camcorders, the image information from a computer can be further displayed on a digital camcorder, and the image information outputted from the digital camcorder can also be outputted to a computer. Moreover, it is good also as a configuration which delivers and receives image data between a digital camcorder and a digital still camera.

[Embodiments of the Invention] Hereafter, the example of the operation gestalt of this invention is explained in detail using a drawing.

<Example of operation gestalt of ** 1st> view 1 explains the example of the 1st operation gestalt of this invention, and it is the system configuration view of the digital still camera of the example of the 1st operation gestalt. Moreover, drawing 2 is an external view of the digital still camera 1 used by this example. In addition, after explaining the appearance configuration of the digital still camera 1 first shown in drawing 2 for the sake of the convenience of an explanation, the system configuration of drawing 1 is explained.

[0030] It is the position which is not visible in view 2 probably since the digital still camera 1 consists of a camera book soma 40 and the lens section 41 in drawing 2 and the lens section 41 is located in the front face of the digital still camera 1. Moreover, a viewfinder 42 is located in the rear face of the digital still camera 1, and the image data inputted from the lens section 41 projects on a viewfinder 42. On the other hand, the button 43 prepared in the top of the camera book soma 40 is a shutter button, and it operates the shutter button 43, seeing the picture image projected on a viewfinder 42.

[0031] Moreover, a switch 44 is a configuration switch in the mode which reads the picture image a photograph of was already taken, and if this switch 44 is operated, image data will be read from the image memory mentioned later. Moreover, if the "+" switch 45 is operated, the increment of the image data will be carried out from an image memory, the decrement of the image data will be conversely carried out from an image memory, and read-out of the concerned image data will be displayed on a viewfinder 42 one by one, if the "-" switch 46 is operated.

[0032] In addition, in addition to an above-mentioned switch, a transparent touch sensor is formed in the front face of a viewfinder 42, and a liquid crystal display is carried out to the shape of a panel if needed. A numerical keypad and an alphabet key are displayed on this display panel, and the IP address later mentioned by touching the concerned display position is set up. Moreover, setting Aikoh 47 and the urgent icon 48 are displayed on the lower-left section of a viewfinder 42 with powering on of the digital still camera 1. Setting Aikoh 47 is an icon for displaying the display panel of the **** for a setup of an IP address etc. on a viewfinder 42, and the urgent icon 48 is an icon for a conversion in transmitting processing of emergency as an event. These icons can shift to processing which corresponds by touching the concerned position of a viewfinder 42 with a finger etc. Moreover, although the transmitting icon 49 is not started at the time of the first stage, it is the icon displayed at the same time it starts the urgent icon 48. Drawing 1 is a system configuration view explaining the circuit system of the digital still camera 1 which has an above-mentioned appearance configuration.

[0033] In this drawing, the digital still camera 1 consists of CPU4 for controlling the image memory 3 for memorizing CCD image sensor 2 for acquiring a photograph picture image, and a photograph picture image, and the system of the digital still camera 1, a color display 5 (the above-mentioned viewfinder 42), etc. CCD image sensor 2 takes a photograph of the scene at the time of picture images, such as a person who inputs through the above-mentioned lens section 41, and scenery, or a calamity, and records it as a photograph picture image. Moreover, after CCD image sensor 2 incorporates above-mentioned image data synchronizing with the timing signal of a timing generator 7 and changes it into digital data in the analog-to-digital-conversion circuit (A/D-conversion circuit) 8, it is once memorized to RAM9.

[0034] CPU4 performs control processing according to the program memorized by ROM10, uses the work area of RAM9, and processes an above-mentioned photograph picture image (image data). Therefore, processing which memorizes the image data a photograph of was taken by above-mentioned CCD image sensor 2 to RAM9 is also performed by control of CPU4, and future processing is also performed by control of CPU4.

[0035] Compression processing of the pixel data memorized by RAM9 is carried out by the

compression zone 22. In addition, a compression zone 22 uses well-known compression processing of byte length, JPEG, etc. at this time. The pixel data in which compression processing was carried out by the compression zone 22 are memorized by the image memory 3. Moreover, this image memory 3 has the storage capacity of the image data of about 100 sheets. [0036] In addition, the key input section 12 is a block shown on behalf of the above-mentioned shutter button 43, the switch 44, the "+" switch 45, the "[-]" switch 46, the touch switch on a viewfinder 42, etc., and the operation signal outputted by operating an above-mentioned button 43, the above-mentioned switch 44, etc. is outputted to CPU4. For example, if the read-out mode of the pixel data which operated the switch 44 and were memorized to the image memory 3 is set up, according to operation of the "+" switch 45 or the "- " switch 46, image data will be henceforth read from an image memory 3, and it will be displayed on a color display 5.

[0037] At this time, the image data compressed from the image memory 3 is read, and it is outputted to the back video-signal occurrence section 14 in which extension processing was carried out by the extension section 23. The video-signal occurrence section 14 adds a synchronizing signal to a digital picture signal, and creates a digital video signal. The digital video signal created in the video-signal occurrence section 14 is changed into an analog video signal in the digital to analog circuit (D/A-conversion circuit) 15, is outputted to a color display 5 (viewfinder 42), and displays a photograph picture image.

[0038] Therefore, the color display of the photograph picture image a photograph of was taken by CCD image sensor 2 is carried out to a color display 5 (viewfinder 42). Moreover, the operator of not only image data but a camera who memorized to the image memory 3 can display immediately the picture image a photograph of was taken on a color display 5 (viewfinder 42), and can check a picture image.

[0039] On the other hand, IC memory 17, the magnetic tape memory 18, and the optical disk memory 19 are connected to the digital still camera 1 through the driver 16. Such memory is memory which memorizes the image data sent through a communication line independently [the above-mentioned image memory 3].

[0040] Moreover, the digital still camera 1 of this example is connected to the communication network through the communication interface (henceforth communications I/F) 21. For example, they are radio networks, such as LAN (Local Area Network), WAN (Wide Area Network), internet, an analog telephone network, a digital telephone network (ISDN: Integral Service Digital Network), PHS (personal handicap system), and satellite communication, etc. as a communication network linked to the communication interface 21. Moreover, these communication networks are connected to each communication network through the modem 24.

[0041] In addition, CG (character generator) 11 shown in the system of drawing 1 is a circuit used in case closed caption processing of the alphabetic data transmitted from other digital still cameras or the personal computer is carried out. It specifically consists of a character font and is constituted from the bit-mapped font of a 1 character 24x24 dots configuration by this example. In the digital still camera 1 of the above configuration, the processing operation is explained below.

[0042] The drawing 3 or the drawing 8 is a flow chart explaining a processing operation of this example. First, drawing 3 is the main flow charts and shows the primitive operation of the digital still camera 1 of this example. In this drawing, CPU4 judges the existence of an event first (step 1 (henceforth S)). It can be set as the event status by carrying out the depression of the position of the urgent icon 48 which an event is in the case at the time of calamities, such as an earthquake and a flood, in this example here, and is displayed on the viewfinder 42 in this case (S1 is YES). In addition, when it is not in the event status, a photograph of the picture image as which (S1 operates the ***** button 43, and was displayed on the viewfinder 42 according to the operation of NO) and the usual digital still camera 1 can be taken, and the photograph picture image which operated the switch 44 and was accumulated to the image memory 3 can be seen.

[0043] On the other hand, when CPU4 judges it as event owner ** (S1 is YES), data reception (S2) or send-data processing is performed (S3). Moreover, timer interruption processing (S4) shown in drawing 3 is processing which performs data reception (S2) or send-data processing

(S3) in the above-mentioned event status, can transmit the image data later mentioned by the time interval by setting up this timer interruption processing (S4) in 5 minutes or 10 etc. minutes beforehand, or can receive image data. Hereafter, a processing operation of this example is explained to the order of data reception (the 1st), send-data processing, and data reception (the 2nd). In addition, the ground for explaining data reception in 2 steps as mentioned above is that there are both command reception which an operator does a key stroke and is received, and reception of the image data inputted through the communication interface 21 as data reception. <<data reception>> -- this data reception is command reception which an operator does a key stroke and receives Drawing 4 is a flow chart explaining the data reception of this example, and, as for command reception, processing (S 2-1) of this drawing, decision (S 2-2), and command analysis processing of drawing 5 correspond in this processing. Hereafter, it explains concretely. [0044] First, if the digital still camera 1 receives a command (S 2-1), the concerned command will judge whether it is a setting command (S 2-2). if the received command is not a setting command here -- a degree -- decision of being image information -- shifting (S 2-3, 2nd data reception) -- if it is a setting command, it will shift to command analysis processing (S 2-2 is YES)

[0045] Drawing which explains this command analysis processing in detail is the flow chart of drawing 5 (S2-2'). That is, the operator of a camera operates setting Aikoh 47 of a viewfinder 42 himself, displays a setting panel on a viewfinder 42, and performs the following setting processings.

[0046] first, case [of mainframe IP address setting processing] (case 1): -- the key to which the setting panel displayed on the viewfinder 42 in this case corresponds is touched An IP address setting command is outputted to CPU4 by this processing, and CPU4 performs setting processing of an IP address by the input of this IP address setting command. The numerical keypad and alphabet key which are displayed on a viewfinder 42 are specifically operated, the IP address of the digital still camera 1 of self is set up, and it registers with the address memory 25.

[0047] next, case [of group IP address setting processing] (case 2): -- the key to which the setting panel displayed on the viewfinder 42 also in this case corresponds is touched, and a group IP address setting command is outputted to CPU4 CPU4 will perform setting processing of a group IP address, if this group IP address setting command inputs. Specifically, a group division is carried out at communication provider groups, such as two or more groups, for example, an electronic mail group, a facsimile network (facsimile network) group, and NIFTY, etc., and an IP address is set up separately. Thus, the set-up group IP address is registered into the address memory 25. In addition, in the case of send-data processing mentioned later, for example, these group IP addresses registered into the address memory 25 are used in order to transmit image data to each group.

[0048] Next, in the case of data-format setting command processing (case 3), it carries out, operating the key to which the setting panel by which this processing was also displayed on the viewfinder 42 corresponds, and a setup of a format of a mail transmitting method, a setup of a format of a facsimile network, a setup of a compression method, etc. are specifically performed.

[0049] Although initial cofiguration processing is performed at the last at the last after each setting processing of a case (case 4):**** of initial cofiguration processing, it performs, when this initial cofiguration processing is performed also in the case of send-data processing, data reception, etc. and power is switched on at the digital still camera 1 of further this example. Specifically, initial charge elimination processing of clear processing of data and CCD image sensor 2, above-mentioned setting Aikoh 47, display processing of the urgent icon 48 which remain in the register and RAM9 in CPU4 are performed.

After performing various setting processings which a command directs by processing more than <<send-data processing>>, send-data processing is performed (S3 of drawing 3).

[0050] Drawing 6 is a flow chart which explains this send-data processing concretely. Send-data processing from the digital still camera 1 is started by operation of the urgent icon 48. That is, this urgent icon 48 is operated in the case of emergency, such as a calamity, and send-data processing is started.

[0051] First, existence of image information is judged (S 3-1). CPU4 searches an image memory 3, and decision of the existence of this image information will judge it as image information owner **, if image data is memorized in the image memory 3 (S 3-1 is YES). That is, a photograph of the image data which the status at the time of a calamity, the location of a calamity, etc. understand is taken, and by making the image memory 3 memorize, this image data is read and image information is judged. Moreover, the image data memorized to an image memory 3 may be the photography picture image of the paper which wrote the status of a calamity, the location of a calamity, time, etc. However, when the image data which should transmit to an image memory 3 is not memorized, (S 3-1 ends NO) and a transmitting flow, and returns to the main processings.

[0052] Next, CPU4 judges the existence of sending (S 3-2). This decision is judged by whether the operator of a camera operates the transmitting icon 49. Specifically, by operating the above-mentioned urgent icon 48, the transmitting icon 49 is displayed and it judges by whether an operator does the depression of the concerned transmitting icon 49. Therefore, if the transmitting icon 49 is not pushed even if the image data which should transmit to an image memory 3 is memorized, it returns to main processing (S 3-2 is NO).

[0053] On the other hand, if the transmitting icon 49 is pushed, it will be judged as the thing with transmitting designation (S 3-2 is YES), and a transmitting picture image will be chosen (S 3-3). This picture image selection processing operates the above-mentioned "+" switch 45 and the "[-]" switch 46, displays a picture image on a viewfinder 42 one by one, and chooses a transmitting picture image. Thus, the selected image data is once memorized to RAM9. Next, CPU4 chooses a sending place group (S 3-4). Here, selection of a sending place group reads the IP address of the groups (an electronic mail group, facsimile network group, etc.) registered as mentioned above from the address memory 25, and chooses the group which wishes to transmit.

[0054] The image data chosen by above-mentioned selection processing (S 3-3) is transmitted to the sending place group chosen as mentioned above (S 3-5). The IP address of the sending place group specifically chosen as mentioned above is read, and the image data chosen to the concerned address is transmitted. That is, it outputs to communication networks, such as internet, through the picture image day communication port 21 read from the image memory 3. <<data reception>>, next the reception of image data transmitted as mentioned above are explained.

[0055] This processing is processing explained with the flow chart of decision (S 2-3) of the above-mentioned drawing 4, (S 2-4) and the drawing 7, and the drawing 8. First, if a command inputs (S 2-1), the digital still camera 1 judges that it is the above-mentioned setting command (S 2-2), and since it is not a setting command, it will judge further that it is image information in this case (S 2-3). Here, if it judges that it is image information, it will shift to the flow chart shown in drawing 7.

[0056] That is, CPU4 stores the image information inputted into RAM9, if the image information inputted through communications I/F21 is received (step 1 (ST shows below)) (ST2). Next, the header information of the inputted image information is displayed on a viewfinder 42 (ST3). In this header information, who is - somewhere. - The information understood the image data of how many sheets it sent is included. Therefore, in a receiving side, it judges whether the image data which received is displayed by checking the header information displayed on a viewfinder 42 (ST4).

[0057] Here, if it judges that image information is displayed (ST4 is YES), the image data once stored in RAM9 will be outputted to the video-signal occurrence section 14, and image information will be displayed on a color display 5 (viewfinder 42) through the D/A-conversion circuit 15 (ST5). Moreover, the displayed image data is registered into an image memory 3. In addition, in judging that a display is unnecessary, after (ST4 performs NO) and again clear authentication (ST6), the image data stored in RAM9 is eliminated (ST7).

[0058] If the content which the possessor of the digital still camera 1 looks at the picture image displayed on a color display 5 (viewfinder 42) by displaying the image information inputted into the viewfinder 42 as mentioned above, for example, was displayed is an information on a calamity, the status of a calamity can be known immediately. For example, drawing 8 (a) is the example of the picture image at the time of the above-mentioned calamity projected on the

viewfinder 42 of the digital still camera 1, and a transmitting person receives the picture image a photograph of was taken with the digital still camera 1, and displays it on a viewfinder 42. Therefore, an addressee can judge occurrence of a calamity, and the status of a calamity immediately by seeing the picture image of this fire.

[0059] Moreover, a transmitting person writes a handwriting character to paper, can take a photograph of the handwriting character with the digital still camera 1, and can also transmit. For example, this drawing (b) is drawing showing the example, and the location of the calamity occurrence about the image data sent before, the status, time, etc. are spent in a handwriting character. By this, the occurrence location, the status, etc. of a calamity can be more known in a detail.

[0060] On the other hand, alphabetic information may be received in data reception. It is processing of decision (S 2-4) of drawing 4. For example, they are the case where the above-mentioned digital still camera 1 also transmits alphabetic information with image data, and the case where an information is sent from a communication service contractor by the so-called closed caption method. In this case, if it judges that CPU4 is the input of alphabetic information (S 2-4 is YES), processing according to the flow chart shown in drawing 9 will be performed.

[0061] That is, CPU4 receives the alphabetic information inputted through communications I/F21 (step 1 (STP shows below)), and once stores this alphabetic information in RAM9 (STP2). Next, CPU4 graphic-izes inputted alphabetic information (STP3). Let this graphic-ized processing be the alphabetic information of for example, a 1 character 24x24 dots configuration by reading the alphabetic information stored in RAM9, and analyzing alphabetic information, for example, reading the bit map data corresponding to character code from CG11.

[0062] Next, it judges whether CPU4 docks the graphic-ized alphabetic information and image data (STP4). Here, alphabetic information and image data are compounded, and only alphabetic information will be displayed if there is nothing (STP4 is NO). On the other hand, if alphabetic information and image data are compounded (STP4 is YES), CPU4 will perform selection processing of image data (STP5). Like the above-mentioned explanation, this selection processing reads one image data at a time from an image memory 3 by the key stroke, and it chooses it, displaying on a viewfinder 42.

[0063] The image data chosen as mentioned above is added to an above-mentioned character graphical data, and is memorized by the image memory 3 with the compound gestalt. And in judging like the above-mentioned whether an above-mentioned synthetic picture image is displayed by header information (STP7, STP8) and displaying a synthetic picture image, (STP8 outputs the synthetic data memorized to YES) and RAM9 to the video-signal occurrence section 14, and displays on a color display 5 (viewfinder 42) through the D/A-conversion circuit 15 (STP9). On the other hand, if the display is unnecessary, again clear existence will be checked (STP10), and the synthetic data which correspond from RAM9 are deleted (STP11).

[0064] The possessor of the digital still camera 1 can know the status of a still detailed calamity by displaying synthetic image information on a color display 5 (viewfinder 42) as mentioned above. For example, since drawing 10 carries out character representation of the location and the status of a calamity with the picture image which is drawing showing the example of the synthetic picture image projected on the viewfinder 42, and the transmitting person took a photograph of with the digital still camera 1, it can know the detailed status of a calamity with a picture image. In addition, character representation is good also as a configuration passed as a telop.

[0065] As explained above, using a radio function, it can connect with communication networks, such as direct internet, from a digital still camera, and the digital still camera of this example of the operation gestalt can transmit image data etc., even when there is neither telephone nor facsimile equipment at the time of a calamity etc., and when the circuit is cutting.

[0066] It can transmit to the partner point of the address which followed, for example, specified a picture image, alphabetic information, etc. required for emergency directly from the electronic still camera 1, and a diffusion of the information on emergency can be aimed at easily. By this, an information can be exactly transmitted to emergency, such as a calamity, and an information can be simultaneously transmitted to the whole world by using especially internet.

<The 2nd example of the operation gestalt>, next the example of the 2nd operation gestalt of this invention are explained.

[0067] This example is not the configuration that has a communication interface on a digital still camera mainframe but a configuration which considers a communication interface as the equipment of another field.

[0068] Drawing 11 is a system configuration view explaining the example of the operation gestalt of the above 2nd. The constitutional difference with this example and the 1st above-mentioned example of the operation gestalt is the point that the communication device 33 which built the communication interface in the digital still camera is connected. Therefore, the digital still camera 1 of the point which consists of CPU4 for controlling the image memory 3 for memorizing CCD image sensor 2 for acquiring a picture image and image data and the system of the digital still camera 1, a color display 5, etc. is the same as that of the 1st above-mentioned example of the operation gestalt. However, it differs in that connect with a communication device 33 through input/output port 32, and the communication device 33 is further connected to communication networks, such as internet.

[0069] That is, non-illustrated CPU, ROM, RAM, etc. are built in a communication device 33, the program which performs processing according to the flow chart shown in the above-mentioned drawing 4, the drawing 6, the drawing 7, and the drawing 9 is registered into ROM, CPU reads this program and send-data processing or data reception is performed.

[0070] Therefore, if send-data processing is chosen according to the main processings (flow chart of drawing 3) which digital still camera 1 mainframe performs (S3), a communication device 33 will read the program for performing processing shown in drawing 6 from ROM, and will perform transmitting processing of image data. On the other hand, if data reception is chosen according to the main processings (flow chart of drawing 3) (S2), the program for performing processing shown in the drawing 4 and the drawing 7, and the drawing 9 will be read from ROM, and reception of image data will be performed.

[0071] Therefore, also by constituting in this way, it can transmit to the partner point of the address which specified a picture image, alphabetic information, etc. required for emergency through the communication device 33 from the electronic still camera 1, for example, and a diffusion of the information on emergency can be aimed at easily. By this, an information can be exactly transmitted to emergency, such as a calamity, and an information can be simultaneously transmitted to the whole world by using especially internet. In addition, although two above-mentioned examples of the operation gestalt explained transceiver processing of the image data which used the digital still camera, you may perform transceiver processing of the image data of emergency not only using a digital still camera but using a digital camcorder. In this case, the image data a photograph of was taken by CCD image sensor 2 can use the system of the drawing 1 or the drawing 11 except for the point recorded on videotape.

[0072] Moreover, as an explanation of the above-mentioned example of the operation gestalt, although the meaning of an event considered as occurrence of a calamity, it is not limited to occurrence of a calamity and can make all the statuses the conditions of event occurrence.

[0073] Furthermore, in the case of the above-mentioned transmitting processing, it is good also as a configuration which outputs voice data simultaneously, for example, in the case of emergency, the voice of the status correspond with image information also flows, an information is supplied in the type where a picture image and voice overlapped, and the status of events, such as a calamity, can be exactly grasped by the receiving side.

[Effect of the Invention] According to this invention, the following effects can be acquired as explained above.

[0074] According to this invention, since informational transmission and reception can be performed only with a digital still camera, compared with the case where a personal computer is used, complicated operation of connection of a cable, the compatibility of software, mouse operation, etc., etc. is not needed, but it can be operated so that the conventional camera may be treated.

[0075] Moreover, by picturizing with a camera also for alphabetic information or a handwriting information, it can catch as image information and informations, such as a calamity, can be more

easily transmitted as image data.

[0076] Moreover, since an information can be transmitted by easy operation, not only the time of a calamity but the inconvenient deaf-mute of an ear or language can operate it easily, and the electronic still camera of this example can be used also in respect of welfare.

[Translation done.]

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Field

[The technical field to which invention belongs] this invention relates to the digital still camera which can deliver and receive an information through communication networks, such as internet, and a digital camcorder.
[0002]

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Technique

[Description of the Prior Art] In recent years, in connection with highly-efficient-izing of a personal computer, and improvement in the speed, use of internet has spread increasingly. Drawing 12 is drawing showing the use gestalt of the conventional general internet. Usually, it connects with the provider who contracted through the telephone line 51 connected to the personal computer 50, and internet accesses the homepage which he wishes through various circuits from there, and incorporates the information on a homepage. Moreover, in using electronic mail, a partner's IP address to wish is specified, for example, it transmits electronic mail through a provider.

[0003] On the other hand, in a personal computer 50 side, the information on the read homepage and the received electronic mail are displayed on a display. Moreover, in printing the received information, the printer 52 linked to the personal computer 50 is driven, and it performs printing processing. Especially electronic mail is widely used as substitution of a telephone, even if the other party is absence, it can send data and a file as a text, and it is a convenient system today.

[0004] Instead of the so-called conventional analog camera and a conventional 8mm video camera, the digital still camera which can process a photograph picture image and an image pck-up picture image with a personal computer, and the digital camcorder are marketed widely on the other hand recently. In such a digital still camera and a digital camcorder, the digital picture image a photograph of was taken can be easily processed by including the software of exclusive use in a personal computer. For example, the photograph picture image incorporated in the personal computer from the digital still camera can be displayed, and it can also print by the printer.

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Effect

[Effect of the Invention] According to this invention, the following effects can be acquired as explained above.

[0074] According to this invention, since informational transmission and reception can be performed only with a digital still camera, compared with the case where a personal computer is used, complicated operation of connection of a cable, the compatibility of software, mouse operation, etc., etc. is not needed, but it can be operated so that the conventional camera may be treated.

[0075] Moreover, by picturizing with a camera also for alphabetic information or a handwriting information, it can catch as image information and informations, such as a calamity, can be more easily transmitted as image data.

[0076] Moreover, since an information can be transmitted by easy operation, not only the time of a calamity but the inconvenient deaf-mute of an ear or language can operate it easily, and the electronic still camera of this example can be used also in respect of welfare.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, there are the following problems by a conventional digital still camera and a conventional digital video.

[0005] (b) First, with the digital still camera or the digital camcorder, the direct output of the picture image a photograph of was taken could not be carried out to internet, for example, image data was once incorporated in the personal computer, and the photography picture image was outputted to internet by the software of exclusive use. Therefore, the system which can access internet from a direct digital still camera or a digital camcorder is demanded.

[0006] (b) Moreover, at the time of calamities, such as an earthquake and a flood, it is required to perform urgent connection and a telephone and facsimile are used widely today. However, at the time of the above calamities, it has turned out experientially that it is useful to use communication networks, such as electronic mail by the personal computer. However, in the conventional system, in case data are transmitted and received to emergency, serious work is needed. That is, the picture image a photograph of was taken, for example with the camera etc. is incorporated in a personal computer at once, the content is processed, and transmitting processing of image data is performed. For this reason, by the conventional technique, processing takes time, and reservation of equipments is also serious.

[0007] In order that this invention may solve the above-mentioned technical problem, it is the digital still camera which can carry out a direct file to internet, and a digital camcorder, and aims at offering the digital still camera which sends a picture image and alphabetic information to internet, and can send an information to a required partner easily even if it is emergency intelligence, and a digital camcorder.

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MEANS

[Means for Solving the Problem] The above-mentioned technical problem can be attained by offering the digital still camera which has the image memory which memorizes the image data a photograph of was taken with the image pick-up means and this image pick-up means according to invention according to claim 1, an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[0008] Namely, the digital still camera of this invention can connect to direct internet the image information a photograph of was taken with the digital still camera through a communication interface, and can send it to a partner's digital still camera or a personal computer. Moreover, the image data outputted from computers, such as a personal computer, can be directly received with the digital still camera of this invention, and it can also display on the display means of a digital still camera.

[0009] Thus, without using a computer by constituting, image information can also be transmitted and received only between digital still cameras, the image information from a computer can be further displayed on a digital still camera, and the image information outputted from the digital still camera can also be outputted to a computer.

[0010] A publication of a claim 2 materializes invention of the claim 1 above-mentioned publication, and the aforementioned display means is a configuration which carries out the synthetic display also of the alphabetic data with image information.

[0011] Thus, by constituting, a photograph of the handwriting character written to paper can be taken with a digital still camera, and it can also transmit to other digital still cameras, personal computers, etc.

[0012] The picture image in which a publication of a claim 3 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned image pick-up means picturizes it is a picture image for example, at the time of a calamity.

[0013] As a picture image at the time of a calamity, the photograph which accompanies site photographs, such as an earthquake and a flood, and this can be considered, and a photograph of the image information at the time of such a calamity is taken with the digital still camera of this example, and by passing to a communication network by the output means, above-mentioned image information can be received with the digital still camera which has communication facility like this example, and it can display on a display means. Moreover, the image information passed by the digital still camera at the communication network is also receivable with a personal computer.

[0014] Thus, by constituting, the image information at the time of a calamity can know easily with a digital still camera or a personal computer. Moreover, the information which changes every moment is known on real time, and moreover as equipments, emergency intelligence can be sent only with a digital still camera, or it can receive.

[0015] The picture image in which a publication of a claim 4 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned image pick-up means picturizes it is for example, handwriting alphabetic information.

[0016] By the image pick-up means, this example takes a photograph of the handwriting character written to paper, makes the handwriting character itself image information, and sends it to a communication network.

[0017] Thus, by constituting, for example, at the time of a calamity, the location and the content of damage are written by hand on paper that emergency should be told, as image information, it transmits, the thing of this handwriting information can be carried out, and emergency can be reported very easily.

[0018] A publication of a claim 5 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned input means is the configuration of inputting the image data outputted from a computer.

[0019] That is, this example can receive directly the emergency intelligence outputted from computers, such as a personal computer, with a digital still camera, and can know emergency intelligence by displaying the concerned image information.

[0020] A publication of a claim 6 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned output means consists of the another field for example, to the mainframe of a camera.

[0021] Thus, by constituting, the digital still camera of this invention can be completed also by attaching the equipment which contains a communication interface in a digital still camera mainframe.

[0022] A publication of a claim 7 also materializes invention of the claim 1 above-mentioned publication, and the aforementioned communication network is internet.

[0023] This example is a configuration which delivers and receives image information through internet as a communication network, by minding internet, it can send an information not only to domestic but to the whole world, for example, can be prompt, can pass a calamity information etc. in the world easily, and can desire effective practical use of immediate urgent assistance etc. The image memory which memorizes the image data which took a photograph of the above-mentioned technical problem with the image pick-up means and this image pick-up means according to invention according to claim 8, The 1st digital still camera which has an output means to output the image data memorized to this image memory to a communication network, It can attain by offering the network system possessing the 2nd digital still camera which has an input means to input the image data supplied through a communication network, and a display means to display the image data inputted from this input means.

[0024] This example is a network system which receives the image information which transmitted from the digital still camera with other digital still cameras, and delivers and receives an information.

[0025] Thus, transfer of image information or alphabetic information can be performed by constituting, without requiring equipments, such as a personal computer. The image memory which memorizes the image data which took a photograph of the above-mentioned technical problem with the image pick-up means and this image pick-up means according to invention according to claim 9, The digital still camera which has an output means to output the image data memorized to this image memory to a communication network, It can attain by offering the network system possessing the computer which has an input means to input the image data supplied through a communication network from this digital still camera, and a display means to display the image data inputted from this input means.

[0026] This example is the network system which receives the image information which transmitted from the digital still camera with a personal computer, and can receive informations, such as emergency intelligence, also by computer.

[0027] Thus, by constituting, the user of computers, such as a personal computer, can also know emergency intelligence, such as a calamity outputted from the digital still camera, and can diffuse an information widely. The above-mentioned technical problem can be attained by offering the digital camcorder which has the image memory which memorizes the image data a photograph of was taken with the image pick-up means and this image pick-up means according to invention according to claim 10, an output means to output the image data memorized to this image memory to a communication network, an input means to input the image data supplied

through a communication network, and a display means to display the image data inputted from this input means.

[0028] Invention from the above-mentioned claim 10 to the last claim 18 is invention about a digital camcorder, and is the same as that of the above-mentioned digital still camera constitutionally.

[0029] Without following, for example, using a computer, image information can also be transmitted and received only between digital camcorders, the image information from a computer can be further displayed on a digital camcorder, and the image information outputted from the digital camcorder can also be outputted to a computer. Moreover, it is good also as a configuration which delivers and receives image data between a digital camcorder and a digital still camera.

[Embodiments of the Invention] Hereafter, the example of the operation gestalt of this invention is explained in detail using a drawing.

<Example of operation gestalt of ** 1st> view 1 explains the example of the 1st operation gestalt of this invention, and it is the system configuration view of the digital still camera of the example of the 1st operation gestalt. Moreover, drawing 2 is an external view of the digital still camera 1 used by this example. In addition, after explaining the appearance configuration of the digital still camera 1 first shown in drawing 2 for the sake of the convenience of an explanation, the system configuration of drawing 1 is explained.

[0030] It is the position which is not visible in view 2 probably since the digital still camera 1 consists of a camera book soma 40 and the lens section 41 in drawing 2 and the lens section 41 is located in the front face of the digital still camera 1. Moreover, a viewfinder 42 is located in the rear face of the digital still camera 1, and the image data inputted from the lens section 41 projects on a viewfinder 42. On the other hand, the button 43 prepared in the top of the camera book soma 40 is a shutter button, and it operates the shutter button 43, seeing the picture image projected on a viewfinder 42.

[0031] Moreover, a switch 44 is a configuration switch in the mode which reads the picture image a photograph of was already taken, and if this switch 44 is operated, image data will be read from the image memory mentioned later. Moreover, if the "+" switch 45 is operated, the increment of the image data will be carried out from an image memory, the decrement of the image data will be conversely carried out from an image memory, and read-out of the concerned image data will be displayed on a viewfinder 42 one by one, if the "-" switch 46 is operated.

[0032] In addition, in addition to an above-mentioned switch, a transparent touch sensor is formed in the front face of a viewfinder 42, and a liquid crystal display is carried out to the shape of a panel if needed. A numerical keypad and an alphabet key are displayed on this display panel, and the IP address later mentioned by touching the concerned display position is set up. Moreover, setting Aikoh 47 and the urgent icon 48 are displayed on the lower-left section of a viewfinder 42 with powering on of the digital still camera 1. Setting Aikoh 47 is an icon for displaying the display panel of the **** for a setup of an IP address etc. on a viewfinder 42, and the urgent icon 48 is an icon for a conversion in transmitting processing of emergency as an event. These icons can shift to processing which corresponds by touching the concerned position of a viewfinder 42 with a finger etc. Moreover, although the transmitting icon 49 is not started at the time of the first stage, it is the icon displayed at the same time it starts the urgent icon 48. Drawing 1 is a system configuration view explaining the circuit system of the digital still camera 1 which has an above-mentioned appearance configuration.

[0033] In this drawing, the digital still camera 1 consists of CPU4 for controlling the image memory 3 for memorizing CCD image sensor 2 for acquiring a photograph picture image, and a photograph picture image, and the system of the digital still camera 1, a color display 5 (the above-mentioned viewfinder 42), etc. CCD image sensor 2 takes a photograph of the scene at the time of picture images, such as a person who inputs through the above-mentioned lens section 41, and scenery, or a calamity, and records it as a photograph picture image. Moreover, after CCD image sensor 2 incorporates above-mentioned image data synchronizing with the timing signal of a timing generator 7 and changes it into digital data in the analog-to-digital-conversion circuit (A/D-conversion circuit) 8, it is once memorized to RAM9.

[0034] CPU4 performs control processing according to the program memorized by ROM10, uses the work area of RAM9, and processes an above-mentioned photograph picture image (image data). Therefore, processing which memorizes the image data a photograph of was taken by above-mentioned CCD image sensor 2 to RAM9 is also performed by control of CPU4, and future processing is also performed by control of CPU4.

[0035] Compression processing of the pixel data memorized by RAM9 is carried out by the compression zone 22. In addition, a compression zone 22 uses well-known compression processing of byte length, JPEG, etc. at this time. The pixel data in which compression processing was carried out by the compression zone 22 are memorized by the image memory 3. Moreover, this image memory 3 has the storage capacity of the image data of about 100 sheets.

[0036] In addition, the key input section 12 is a block shown on behalf of the above-mentioned shutter button 43, the switch 44, the "+" switch 45, the "[-]" switch 46, the touch switch on a viewfinder 42, etc., and the operation signal outputted by operating an above-mentioned button 43, the above-mentioned switch 44, etc. is outputted to CPU4. For example, if the read-out mode of the pixel data which operated the switch 44 and were memorized to the image memory 3 is set up, according to operation of the "+" switch 45 or the "-" switch 46, image data will be henceforth read from an image memory 3, and it will be displayed on a color display 5.

[0037] At this time, the image data compressed from the image memory 3 is read, and it is outputted to the back video-signal occurrence section 14 in which extension processing was carried out by the extension section 23. The video-signal occurrence section 14 adds a synchronizing signal to a digital picture signal, and creates a digital video signal. The digital video signal created in the video-signal occurrence section 14 is changed into an analog video signal in the digital to analog circuit (D/A-conversion circuit) 15, is outputted to a color display 5 (viewfinder 42), and displays a photograph picture image.

[0038] Therefore, the color display of the photograph picture image a photograph of was taken by CCD image sensor 2 is carried out to a color display 5 (viewfinder 42). Moreover, the operator of not only image data but a camera who memorized to the image memory 3 can display immediately the picture image a photograph of was taken on a color display 5 (viewfinder 42), and can check a picture image.

[0039] On the other hand, IC memory 17, the magnetic tape memory 18, and the optical disk memory 19 are connected to the digital still camera 1 through the driver 16. Such memory is memory which memorizes the image data sent through a communication line independently [the above-mentioned image memory 3].

[0040] Moreover, the digital still camera 1 of this example is connected to the communication network through the communication interface (henceforth communications I/F) 21. For example, they are radio networks, such as LAN (Local Area Network), WAN (Wide Area Network), internet, an analog telephone network, a digital telephone network (ISDN: Integral Service Digital Network), PHS (personal handicap system), and satellite communication, etc. as a communication network linked to the communication interface 21. Moreover, these communication networks are connected to each communication network through the modem 24.

[0041] In addition, CG (character generator) 11 shown in the system of drawing 1 is a circuit used in case closed caption processing of the alphabetic data transmitted from other digital still cameras or the personal computer is carried out. It specifically consists of a character font and is constituted from the bit-mapped font of a 1 character 24x24 dots configuration by this example. In the digital still camera 1 of the above configuration, the processing operation is explained below.

[0042] The drawing 3 or the drawing 8 is a flow chart explaining a processing operation of this example. First, drawing 3 is the main flow charts and shows the primitive operation of the digital still camera 1 of this example. In this drawing, CPU4 judges the existence of an event first (step 1 (henceforth S)). It can be set as the event status by carrying out the depression of the position of the urgent icon 48 which an event is in the case at the time of calamities, such as an earthquake and a flood, in this example here, and is displayed on the viewfinder 42 in this case (S1 is YES). In addition, when it is not in the event status, a photograph of the picture image as which (S1 operates the ***** button 43, and was displayed on the viewfinder 42 according to

the operation of NO) and the usual digital still camera 1 can be taken, and the photograph picture image which operated the switch 44 and was accumulated to the image memory 3 can be seen.

[0043] On the other hand, when CPU4 judges it as event owner ** (S1 is YES), data reception (S2) or send-data processing is performed (S3). Moreover, timer interruption processing (S4) shown in drawing 3 is processing which performs data reception (S2) or send-data processing (S3) in the above-mentioned event status, can transmit the image data later mentioned by the time interval by setting up this timer interruption processing (S4) in 5 minutes or 10 etc. minutes beforehand, or can receive image data. Hereafter, a processing operation of this example is explained to the order of data reception (the 1st), send-data processing, and data reception (the 2nd). In addition, the ground for explaining data reception in 2 steps as mentioned above is that there are both command reception which an operator does a key stroke and is received, and reception of the image data inputted through the communication interface 21 as data reception. <<data reception>> — this data reception is command reception which an operator does a key stroke and receives Drawing 4 is a flow chart explaining the data reception of this example, and, as for command reception, processing (S 2-1) of this drawing, decision (S 2-2), and command analysis processing of drawing 5 correspond in this processing. Hereafter, it explains concretely.

[0044] First, if the digital still camera 1 receives a command (S 2-1), the concerned command will judge whether it is a setting command (S 2-2). if the received command is not a setting command here — a degree — decision of being image information — shifting (S 2-3, 2nd data reception) — if it is a setting command, it will shift to command analysis processing (S 2-2 is YES)

[0045] Drawing which explains this command analysis processing in detail is the flow chart of drawing 5 (S2-2'). That is, the operator of a camera operates setting Aikoh 47 of a viewfinder 42 himself, displays a setting panel on a viewfinder 42, and performs the following setting processings.

[0046] first, case [of mainframe IP address setting processing] (case 1): -- the key to which the setting panel displayed on the viewfinder 42 in this case corresponds is touched An IP address setting command is outputted to CPU4 by this processing, and CPU4 performs setting processing of an IP address by the input of this IP address setting command. The numerical keypad and alphabet key which are displayed on a viewfinder 42 are specifically operated, the IP address of the digital still camera 1 of self is set up, and it registers with the address memory 25.

[0047] next, case [of group IP address setting processing] (case 2): — the key to which the setting panel displayed on the viewfinder 42 also in this case corresponds is touched, and a group IP address setting command is outputted to CPU4 CPU4 will perform setting processing of a group IP address, if this group IP address setting command inputs. Specifically, a group division is carried out at communication provider groups, such as two or more groups, for example, an electronic mail group, a facsimile network (facsimile network) group, and NIFTY, etc., and an IP address is set up separately. Thus, the set-up group IP address is registered into the address memory 25. In addition, in the case of send-data processing mentioned later, for example, these group IP addresses registered into the address memory 25 are used in order to transmit image data to each group.

[0048] Next, in the case of data-format setting command processing (case 3), it carries out, operating the key to which the setting panel by which this processing was also displayed on the viewfinder 42 corresponds, and a setup of a format of a mail transmitting method, a setup of a format of a facsimile network, a setup of a compression method, etc. are specifically performed.

[0049] Although initial cofiguration processing is performed at the last at the last after each setting processing of a case (case 4):**** of initial cofiguration processing, it performs, when this initial cofiguration processing is performed also in the case of send-data processing, data reception, etc. and power is switched on at the digital still camera 1 of further this example. Specifically, initial charge elimination processing of clear processing of data and CCD image sensor 2, above-mentioned setting Aikoh 47, display processing of the urgent icon 48 which remain in the register and RAM9 in CPU4 are performed.

After performing various setting processings which a command directs by processing more than <<send-data processing>>, send-data processing is performed (S3 of drawing 3).

[0050] Drawing 6 is a flow chart which explains this send-data processing concretely. Send-data processing from the digital still camera 1 is started by operation of the urgent icon 48. That is, this urgent icon 48 is operated in the case of emergency, such as a calamity, and send-data processing is started.

[0051] First, existence of image information is judged (S 3-1). CPU4 searches an image memory 3, and decision of the existence of this image information will judge it as image information owner **, if image data is memorized in the image memory 3 (S 3-1 is YES). That is, a photograph of the image data which the status at the time of a calamity, the location of a calamity, etc. understand is taken, and by making the image memory 3 memorize, this image data is read and image information is judged. Moreover, the image data memorized to an image memory 3 may be the photography picture image of the paper which wrote the status of a calamity, the location of a calamity, time, etc. However, when the image data which should transmit to an image memory 3 is not memorized, (S 3-1 ends NO) and a transmitting flow, and returns to the main processings.

[0052] Next, CPU4 judges the existence of sending (S 3-2). This decision is judged by whether the operator of a camera operates the transmitting icon 49. Specifically, by operating the above-mentioned urgent icon 48, the transmitting icon 49 is displayed and it judges by whether an operator does the depression of the concerned transmitting icon 49. Therefore, if the transmitting icon 49 is not pushed even if the image data which should transmit to an image memory 3 is memorized, it returns to main processing (S 3-2 is NO).

[0053] On the other hand, if the transmitting icon 49 is pushed, it will be judged as the thing with transmitting designation (S 3-2 is YES), and a transmitting picture image will be chosen (S 3-3). This picture image selection processing operates the above-mentioned "+" switch 45 and the "[-]" switch 46, displays a picture image on a viewfinder 42 one by one, and chooses a transmitting picture image. Thus, the selected image data is once memorized to RAM9. Next, CPU4 chooses a sending place group (S 3-4). Here, selection of a sending place group reads the IP address of the groups (an electronic mail group, facsimile network group, etc.) registered as mentioned above from the address memory 25, and chooses the group which wishes to transmit.

[0054] The image data chosen by above-mentioned selection processing (S 3-3) is transmitted to the sending place group chosen as mentioned above (S 3-5). The IP address of the sending place group specifically chosen as mentioned above is read, and the image data chosen to the concerned address is transmitted. That is, it outputs to communication networks, such as internet, through the picture image day communication port 21 read from the image memory 3. <<data reception>>, next the reception of image data transmitted as mentioned above are explained.

[0055] This processing is processing explained with the flow chart of decision (S 2-3) of the above-mentioned drawing 4 , (S 2-4) and the drawing 7 , and the drawing 8 . First, if a command inputs (S 2-1), the digital still camera 1 judges that it is the above-mentioned setting command (S 2-2), and since it is not a setting command, it will judge further that it is image information in this case (S 2-3). Here, if it judges that it is image information, it will shift to the flow chart shown in drawing 7 .

[0056] That is, CPU4 stores the image information inputted into RAM9, if the image information inputted through communications I/F21 is received (step 1 (ST shows below)) (ST2). Next, the header information of the inputted image information is displayed on a viewfinder 42 (ST3). In this header information, who is - somewhere. - The information understood the image data of how many sheets it sent is included. Therefore, in a receiving side, it judges whether the image data which received is displayed by checking the header information displayed on a viewfinder 42 (ST4).

[0057] Here, if it judges that image information is displayed (ST4 is YES), the image data once stored in RAM9 will be outputted to the video-signal occurrence section 14, and image information will be displayed on a color display 5 (viewfinder 42) through the D/A-conversion circuit 15 (ST5). Moreover, the displayed image data is registered into an image memory 3. In addition, in judging that a display is unnecessary, after (ST4 performs NO) and again clear

authentication (ST6), the image data stored in RAM9 is eliminated (ST7).

[0058] If the content which the possessor of the digital still camera 1 looks at the picture image displayed on a color display 5 (viewfinder 42) by displaying the image information inputted into the viewfinder 42 as mentioned above, for example, was displayed is an information on a calamity, the status of a calamity can be known immediately. For example, drawing 8 (a) is the example of the picture image at the time of the above-mentioned calamity projected on the viewfinder 42 of the digital still camera 1, and a transmitting person receives the picture image a photograph of was taken with the digital still camera 1, and displays it on a viewfinder 42. Therefore, an addressee can judge occurrence of a calamity, and the status of a calamity immediately by seeing the picture image of this fire.

[0059] Moreover, a transmitting person writes a handwriting character to paper, can take a photograph of the handwriting character with the digital still camera 1, and can also transmit. For example, this drawing (b) is drawing showing the example, and the location of the calamity occurrence about the image data sent before, the status, time, etc. are spent in a handwriting character. By this, the occurrence location, the status, etc. of a calamity can be more known in a detail.

[0060] On the other hand, alphabetic information may be received in data reception. It is processing of decision (S 2-4) of drawing 4. For example, they are the case where the above-mentioned digital still camera 1 also transmits alphabetic information with image data, and the case where an information is sent from a communication service contractor by the so-called closed caption method. In this case, if it judges that CPU4 is the input of alphabetic information (S 2-4 is YES), processing according to the flow chart shown in drawing 9 will be performed.

[0061] That is, CPU4 receives the alphabetic information inputted through communications I/F21 (step 1 (STP shows below)), and once stores this alphabetic information in RAM9 (STP2). Next, CPU4 graphic-izes inputted alphabetic information (STP3). Let this graphic-ized processing be the alphabetic information of for example, a 1 character 24x24 dots configuration by reading the alphabetic information stored in RAM9, and analyzing alphabetic information, for example, reading the bit map data corresponding to character code from CG11.

[0062] Next, it judges whether CPU4 docks the graphic-ized alphabetic information and image data (STP4). Here, alphabetic information and image data are compounded, and only alphabetic information will be displayed if there is nothing (STP4 is NO). On the other hand, if alphabetic information and image data are compounded (STP4 is YES), CPU4 will perform selection processing of image data (STP5). Like the above-mentioned explanation, this selection processing reads one image data at a time from an image memory 3 by the key stroke, and it chooses it, displaying on a viewfinder 42.

[0063] The image data chosen as mentioned above is added to an above-mentioned character graphical data, and is memorized by the image memory 3 with the compound gestalt. And in judging like the above-mentioned whether an above-mentioned synthetic picture image is displayed by header information (STP7, STP8) and displaying a synthetic picture image, (STP8 outputs the synthetic data memorized to YES) and RAM9 to the video-signal occurrence section 14, and displays on a color display 5 (viewfinder 42) through the D/A-conversion circuit 15 (STP9). On the other hand, if the display is unnecessary, again clear existence will be checked (STP10), and the synthetic data which correspond from RAM9 are deleted (STP11).

[0064] The possessor of the digital still camera 1 can know the status of a still detailed calamity by displaying synthetic image information on a color display 5 (viewfinder 42) as mentioned above. For example, since drawing 10 carries out character representation of the location and the status of a calamity with the picture image which is drawing showing the example of the synthetic picture image projected on the viewfinder 42, and the transmitting person took a photograph of with the digital still camera 1, it can know the detailed status of a calamity with a picture image. In addition, character representation is good also as a configuration passed as a telop.

[0065] As explained above, using a radio function, it can connect with communication networks, such as direct internet, from a digital still camera, and the digital still camera of this example of the operation gestalt can transmit image data etc., even when there is neither telephone nor

facsimile equipment at the time of a calamity etc., and when the circuit is cutting.

[0066] It can transmit to the partner point of the address which followed, for example, specified a picture image, alphabetic information, etc. required for emergency directly from the electronic still camera 1, and a diffusion of the information on emergency can be aimed at easily. By this, an information can be exactly transmitted to emergency, such as a calamity, and an information can be simultaneously transmitted to the whole world by using especially internet.

<The 2nd example of the operation gestalt>, next the example of the 2nd operation gestalt of this invention are explained.

[0067] This example is not the configuration that has a communication interface on a digital still camera mainframe but a configuration which considers a communication interface as the equipment of another field.

[0068] Drawing 11 is a system configuration view explaining the example of the operation gestalt of the above 2nd. The constitutional difference with this example and the 1st above-mentioned example of the operation gestalt is the point that the communication device 33 which built the communication interface in the digital still camera is connected. Therefore, the digital still camera 1 of the point which consists of CPU4 for controlling the image memory 3 for memorizing CCD image sensor 2 for acquiring a picture image and image data and the system of the digital still camera 1, a color display 5, etc. is the same as that of the 1st above-mentioned example of the operation gestalt. However, it differs in that connect with a communication device 33 through input/output port 32, and the communication device 33 is further connected to communication networks, such as internet.

[0069] That is, non-illustrated CPU, ROM, RAM, etc. are built in a communication device 33, the program which performs processing according to the flow chart shown in the above-mentioned drawing 4, the drawing 6, the drawing 7, and the drawing 9 is registered into ROM, CPU reads this program and send-data processing or data reception is performed.

[0070] Therefore, if send-data processing is chosen according to the main processings (flow chart of drawing 3) which digital still camera 1 mainframe performs (S3), a communication device 33 will read the program for performing processing shown in drawing 6 from ROM, and will perform transmitting processing of image data. On the other hand, if data reception is chosen according to the main processings (flow chart of drawing 3) (S2), the program for performing processing shown in the drawing 4 and the drawing 7, and the drawing 9 will be read from ROM, and reception of image data will be performed.

[0071] Therefore, also by constituting in this way, it can transmit to the partner point of the address which specified a picture image, alphabetic information, etc. required for emergency through the communication device 33 from the electronic still camera 1, for example, and a diffusion of the information on emergency can be aimed at easily. By this, an information can be exactly transmitted to emergency, such as a calamity, and an information can be simultaneously transmitted to the whole world by using especially internet. In addition, although two above-mentioned examples of the operation gestalt explained transceiver processing of the image data which used the digital still camera, you may perform transceiver processing of the image data of emergency not only using a digital still camera but using a digital camcorder. In this case, the image data a photograph of was taken by CCD image sensor 2 can use the system of the drawing 1 or the drawing 11 except for the point recorded on videotape.

[0072] Moreover, as an explanation of the above-mentioned example of the operation gestalt, although the meaning of an event considered as occurrence of a calamity, it is not limited to occurrence of a calamity and can make all the statuses the conditions of event occurrence.

[0073] Furthermore, in the case of the above-mentioned transmitting processing, it is good also as a configuration which outputs voice data simultaneously, for example, in the case of emergency, the voice of the status correspond with image information also flows, an information is supplied in the type where a picture image and voice overlapped, and the status of events, such as a calamity, can be exactly grasped by the receiving side.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the system configuration view of the digital still camera of the example of the 1st operation gestalt.

[Drawing 2] It is the external view of the digital still camera used in the example of the operation gestalt.

[Drawing 3] They are the main flow charts explaining a processing operation of the digital still camera of the example of the operation gestalt.

[Drawing 4] It is a flow chart explaining data reception.

[Drawing 5] It is a flow chart explaining command analysis processing.

[Drawing 6] It is a flow chart explaining send-data processing.

[Drawing 7] It is a flow chart explaining the reception of image information.

[Drawing 8] (a) is drawing showing an example of the receiving screen of image information. (b) is drawing showing an example of the receiving screen of alphabetic information.

[Drawing 9] It is a flow chart explaining the reception of alphabetic information.

[Drawing 10] It is drawing showing an example of a compounding [image information and alphabetic information] receiving screen.

[Drawing 11] It is drawing showing the system configuration of the digital still camera of the example of the 2nd operation gestalt.

[Drawing 12] It is drawing showing the connection configuration to general internet.

[Description of Notations]

- 1 Digital Still Camera
- 2 CCD Image Sensor
- 3 Image Memory
- 4 CPU
- 5 Color Display
- 7 Timing Generator
- 8 A/D-Conversion Circuit
- 9 RAM
- 10 ROM
- 11 CG
- 12 Key Input Section
- 14 Video-Signal Occurrence Section
- 15 Digital to Analog Circuit
- 16 Driver
- 17 IC Memory
- 18 Magnetic Tape Memory
- 19 Optical Disk Memory
- 21 Communication Interface
- 22 Compression Zone
- 23 Extension Section
- 24 Modem

25 Address Memory
32 Input/output Port
33 Communication Device
40 Camera Book Soma
41 Lens Section
42 Viewfinder
43 Button
44 Switch
45 "+" Switch
46 "[-]" Switch
47 Setting Aikoh
48 Urgent Icon
49 Transmitting Icon

[Translation done.]

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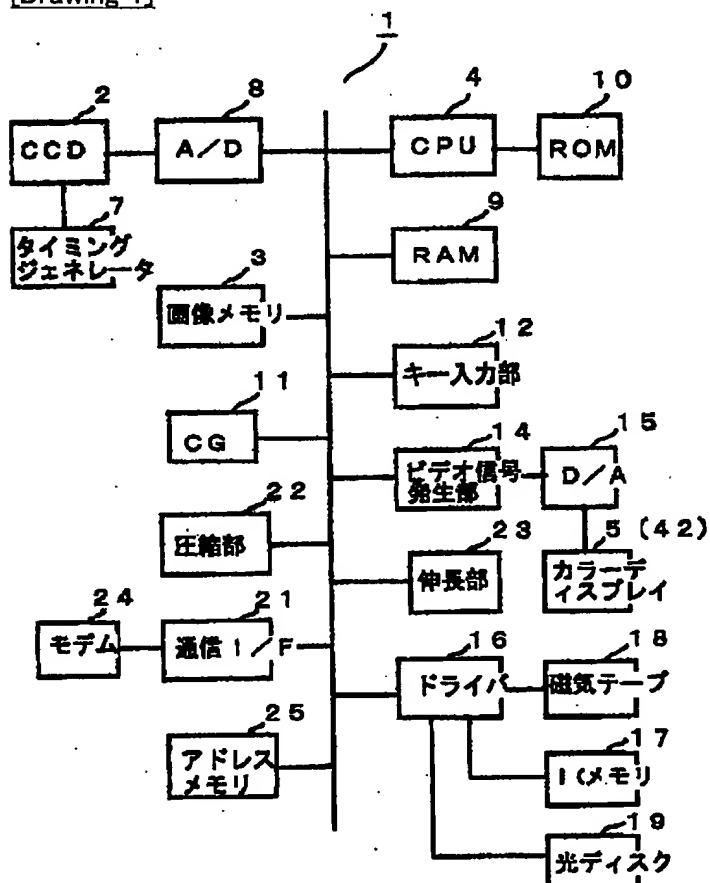
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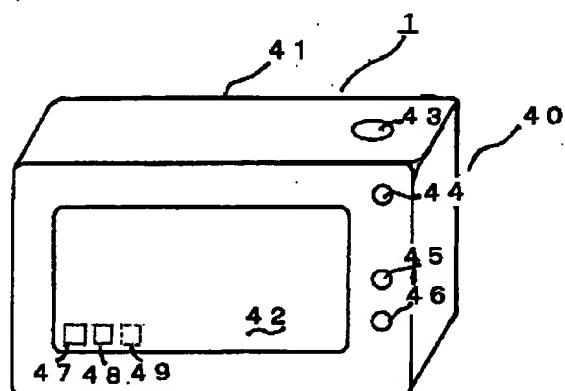
3.In the drawings, any words are not translated.

DRAWINGS

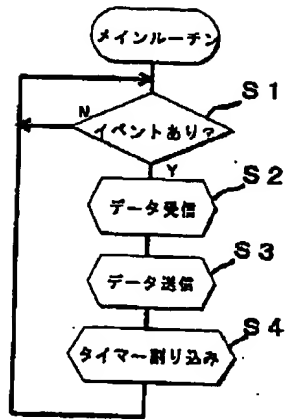
[Drawing 1]



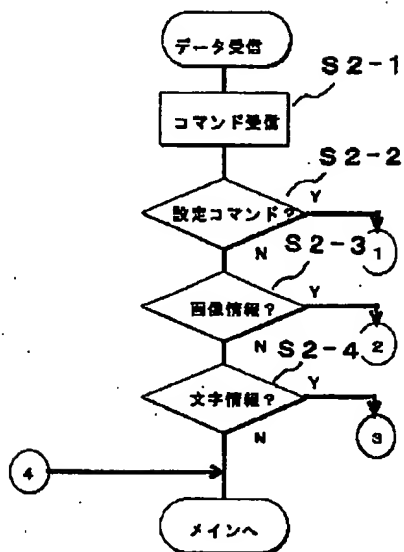
[Drawing 2]



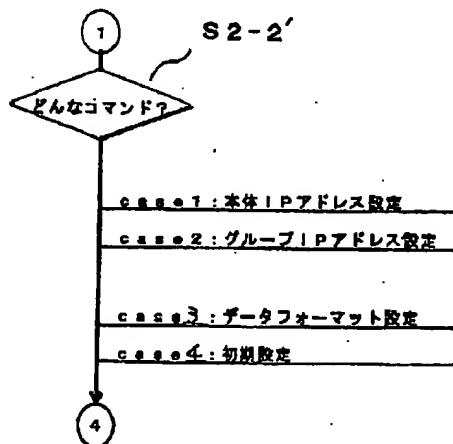
[Drawing 3]



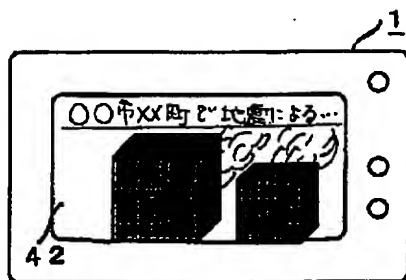
[Drawing 4]



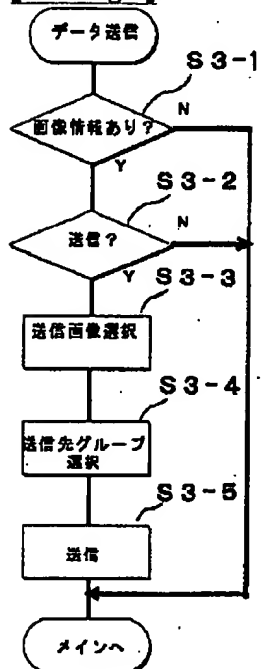
[Drawing 5]



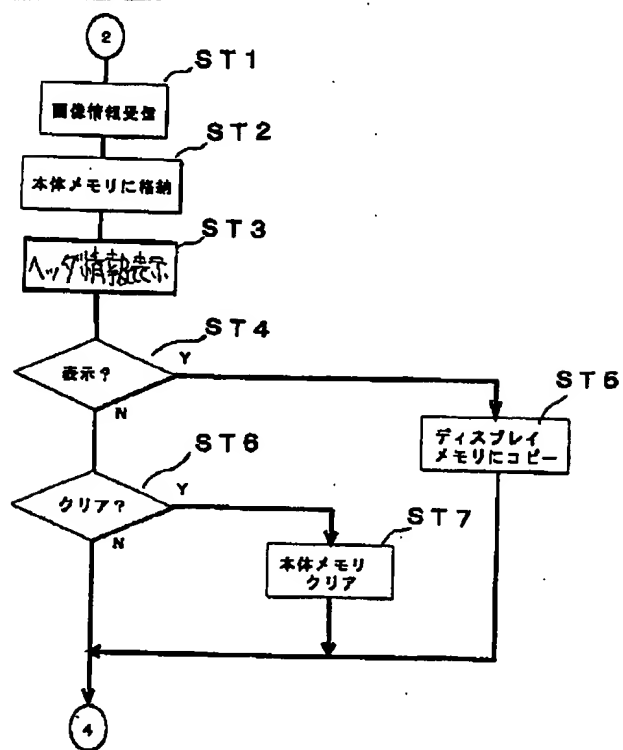
[Drawing 10]



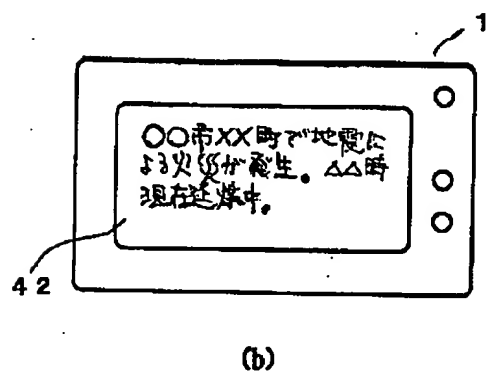
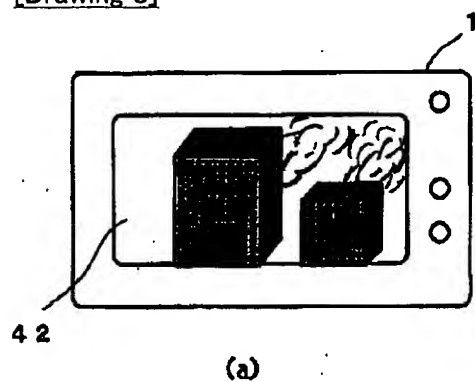
[Drawing 6]



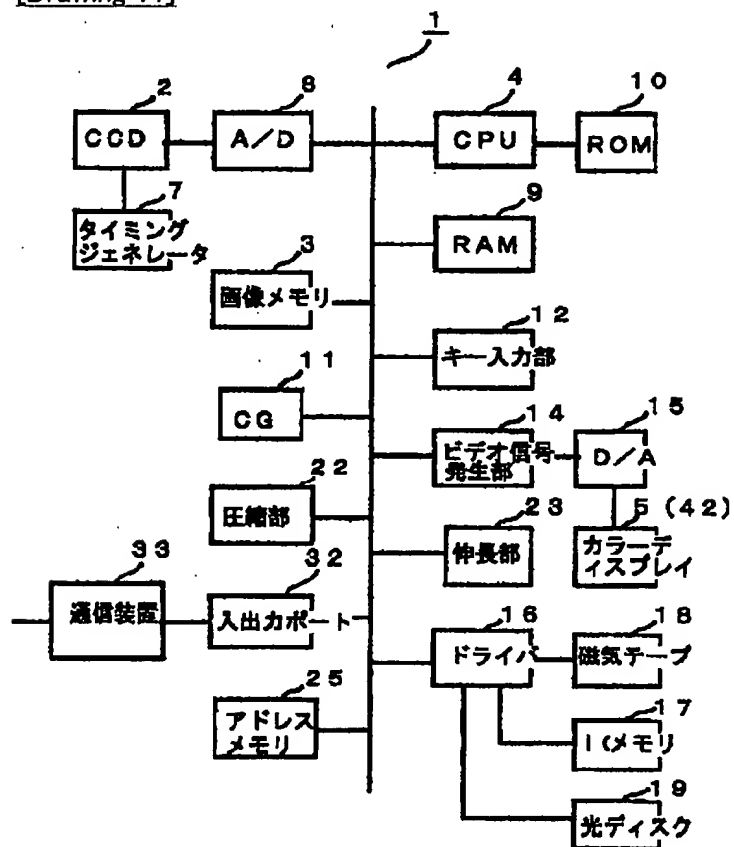
[Drawing 7]



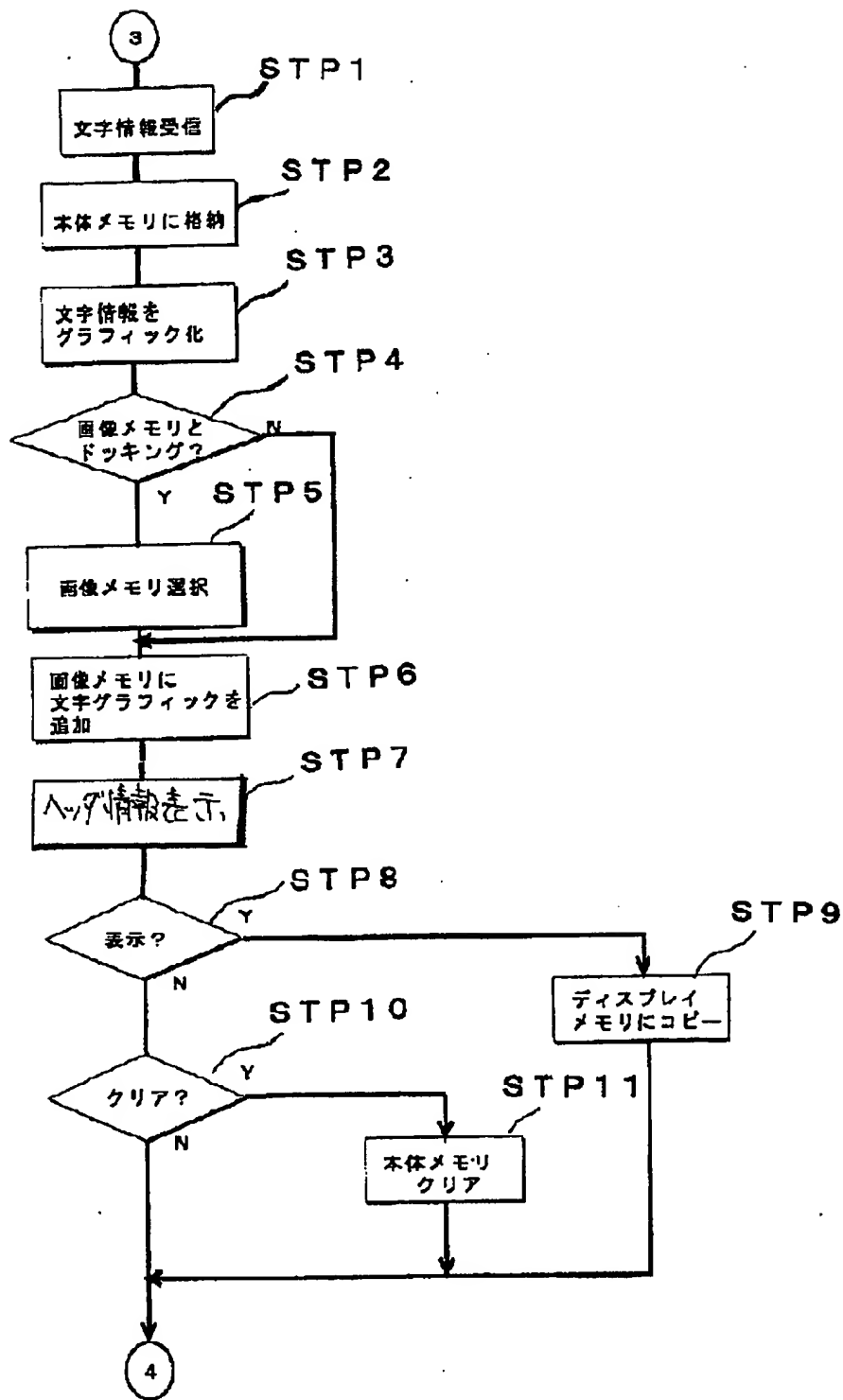
[Drawing 8]



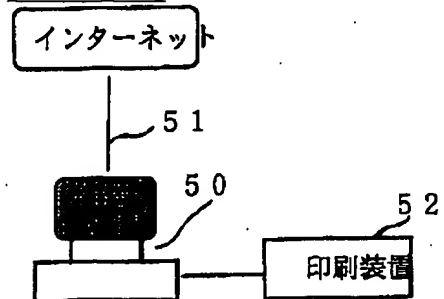
[Drawing 11]



[Drawing 9]



[Drawing 12]



[Translation done.]

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(71)出願人 597103458

株式会社サイテック

群馬県太田市東新町731番地の2

(71)出願人 597103469

飯田電子設計株式会社

東京都練馬区北町7-17-4

(72)発明者 斎藤 修一

群馬県太田市東新町731番地

(72)発明者 飯田 勝洋

東京都練馬区北町7-17-4

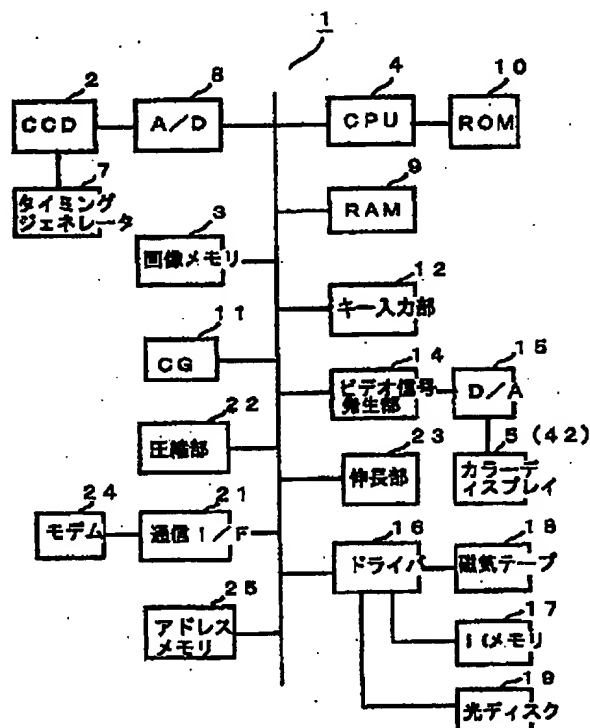
(74)代理人 弁理士 山本 輝美

(54)【発明の名称】 デジタルスチルカメラ及びデジタルビデオカメラ

(57)【要約】

【課題】 本発明はインターネット等の通信回線を介して情報の授受を行うことができるデジタルスチルカメラ、及びデジタルビデオカメラに関し、画像や文字情報をインターネットを介して送り、緊急情報であっても容易に必要な相手に情報の送受信が可能な装置を提供するものである。

【解決手段】 本発明は、CCD撮像素子2によって撮影した画像データをRAM9に格納し、例えば圧縮処理を行って画像メモリ3に記憶する。このようにして画像メモリ3に記憶した画像データは、例えば災害等の場合の撮影画像であり、キー入力部12を介して入力する送信指示信号によって通信インターフェイス21を介してインターネット等の通信ネットワークに出力される。一方、この画像データを受信する他のデジタルスチルカメラ1では受信画像データをRAM9に一旦格納した後、必要に応じてカラーディスプレイ5に受信画像を表示する。このようにシステムを構成することにより、本発明はデジタルスチルカメラ1と他のデジタルスチルカメラ1間で直接画像データの送受信処理を行うことができる。



【特許請求の範囲】

【請求項 1】 撮像手段と、
該撮像手段で撮影した画像データを記憶する画像メモリと、
該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段と、
通信ネットワークを介して供給される画像データを入力する入力手段と、
該入力手段から入力した画像データを表示する表示手段と、
を有することを特徴とするデジタルスチルカメラ。

【請求項 2】 前記表示手段は画像情報と共に、文字データも合成表示することを特徴とする請求項 1 記載のデジタルスチルカメラ。

【請求項 3】 前記撮像手段が撮像する画像は、災害時の画像であることを特徴とする請求項 1 記載のデジタルスチルカメラ。

【請求項 4】 前記撮像手段が撮像する画像は、手書き文字情報であることを特徴とする請求項 1 記載のデジタルスチルカメラ。

【請求項 5】 前記入力手段は、コンピュータから出力される画像データを入力することを特徴とする請求項 1 記載のデジタルスチルカメラ。

【請求項 6】 前記出力手段は、カメラ本体に対して別体であることを特徴とする請求項 1 記載のデジタルスチルカメラ。

【請求項 7】 前記通信ネットワークは、インターネットであることを特徴とする請求項 1 記載のデジタルスチルカメラ。

【請求項 8】 撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段とを有する第 1 のデジタルスチルカメラと、
通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有する第 2 のデジタルスチルカメラと、
を具備することを特徴とするネットワークシステム。

【請求項 9】 撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段とを有するデジタルスチルカメラと、
該デジタルスチルカメラから通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有するコンピュータと、
を具備することを特徴とするネットワークシステム。

【請求項 10】 撮像手段と、
該撮像手段で撮影した画像データを記憶する画像メモリと、

該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段と、
通信ネットワークを介して供給される画像データを入力する入力手段と、

該入力手段から入力した画像データを表示する表示手段と、

を有することを特徴とするデジタルビデオカメラ。

10 【請求項 11】 前記表示手段は画像情報と共に、文字データも合成表示することを特徴とする請求項 10 記載のデジタルビデオカメラ。

【請求項 12】 前記撮像手段が撮像する画像は、災害時の画像であることを特徴とする請求項 10 記載のデジタルビデオカメラ。

【請求項 13】 前記撮像手段が撮像する画像は、手書き文字情報であることを特徴とする請求項 10 記載のデジタルビデオカメラ。

【請求項 14】 前記入力手段は、コンピュータから出力される画像データを入力することを特徴とする請求項 10 記載のデジタルビデオカメラ。

20 【請求項 15】 前記出力手段は、カメラ本体に対して別体であることを特徴とする請求項 10 記載のデジタルビデオカメラ。

【請求項 16】 前記通信ネットワークは、インターネットであることを特徴とする請求項 10 記載のデジタルビデオカメラ。

【請求項 17】 撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段とを有する第 1 のデジタルビデオカメラと、

30 通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有する第 2 のデジタルビデオカメラと、
を具備することを特徴とするネットワークシステム。

【請求項 18】 撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段とを有するデジタルビデオカメラと、

40 該デジタルビデオから通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有するコンピュータと、

を具備することを特徴とするネットワークシステム。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】 本発明はインターネット等の通信ネットワークを介して情報の授受を行うことができるデジタルスチルカメラ、及びデジタルビデオカメラに関する。

50 【0002】

【従来の技術】近年、パーソナルコンピュータの高性能化、高速化に伴って、インターネットの利用は益々広がっている。図 1 2 は、従来の一般的なインターネットの利用形態を示す図である。通常、インターネットはパーソナルコンピュータ 5 0 に接続された電話回線 5 1 を介して、契約したプロバイダに接続し、そこから各種回線を介して希望するホームページにアクセスし、ホームページの情報を取り込む。また、電子メールを使用する場合には、希望する相手の IP アドレスを指定し、例えばプロバイダを介して電子メールを送信する。

【0003】一方、パーソナルコンピュータ 5 0 側では読み込んだホームページの情報や、受け取った電子メールを例えばディスプレイに表示する。また、受信した情報を印刷する場合には、パーソナルコンピュータ 5 0 に接続した印刷装置 5 2 を駆動し、印刷処理を行う。特に今日、電子メールは電話の代替えとして広く使用され、相手側が留守であっても文章としてデータやファイルを送ることができ、便利なシステムである。

【0004】一方最近、従来のいわゆるアナログカメラや 8 ミリビデオカメラに代わって、パーソナルコンピュータによって写真画像や撮像画像を処理できるデジタルスチルカメラや、デジタルビデオカメラが広く市販されている。このようなデジタルスチルカメラや、デジタルビデオカメラでは、パーソナルコンピュータに専用のソフトウェアを組み込むことにより、撮影したデジタル画像を簡単に処理できるものである。例えば、デジタルスチルカメラからパーソナルコンピュータに取り込んだ写真画像を表示し、プリンタで印刷することもできる。

【発明が解決しようとする課題】しかしながら、従来のデジタルスチルカメラやデジタルビデオでは以下の問題がある。

【0005】(イ) 先ず、デジタルスチルカメラやデジタルビデオカメラでは撮影した画像をインターネットに直接出力することができず、例えばパーソナルコンピュータに画像データを一旦取り込み、専用のソフトウェアによって撮影画像をインターネットに出力していた。したがって、直接デジタルスチルカメラやデジタルビデオカメラからインターネットにアクセスできるシステムが要望されている。

【0006】(ロ) また、地震、洪水等の災害時、緊急連絡を行うことが必要であり、今日電話やファックスが広く使用されている。しかし、上述のような災害時にはパーソナルコンピュータによる電子メール等の通信ネットワークを使用することが有用であることが経験的に分かってきた。しかし、従来のシステムでは緊急時にデータを送受信する際大変な作業が必要になる。すなわち、例えばカメラ等で撮影した画像を一度パーソナルコンピュータに取り込み、その内容を加工し、画像データの送信処理を行っている。このため、従来の方法では処理に時間を要し、また機材の確保も大変である。

【0007】本発明は上記課題を解決するため、インターネットに直接接続できるデジタルスチルカメラ、及びデジタルビデオカメラであって、画像や文字情報をインターネットに送り、また緊急情報であっても簡単に必要な相手に情報の送ることができるデジタルスチルカメラ、及びデジタルビデオカメラを提供することを目的とする。

【課題を解決するための手段】上記課題は請求項 1 記載の発明によれば、撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段と、通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有するデジタルスチルカメラを提供することにより達成できる。

【0008】すなわち、本発明のデジタルスチルカメラは、デジタルスチルカメラで撮影した画像情報を通信インターフェイスを介して直接インターネットに接続でき、相手のデジタルスチルカメラ、又はパーソナルコンピュータに送ることができる。また、パーソナルコンピュータ等のコンピュータから出力された画像データを本発明のデジタルスチルカメラで直接受信し、デジタルスチルカメラの表示手段に表示することもできる。

【0009】このように構成することにより、例えばコンピュータを使用することなく、画像情報の送受信をデジタルスチルカメラ間のみで行うこともでき、更にコンピュータからの画像情報をデジタルスチルカメラに表示し、デジタルスチルカメラから出力された画像情報をコンピュータに出力することもできる。

【0010】請求項 2 の記載は上記請求項 1 記載の発明を具体化するものであり、前記表示手段は画像情報と共に、例えば文字データも合成表示する構成である。

【0011】このように構成することにより、紙に書いた手書き文字をデジタルスチルカメラで撮影し、他のデジタルスチルカメラやパーソナルコンピュータ等に送信することもできる。

【0012】請求項 3 の記載も上記請求項 1 記載の発明を具体化するものであり、前記撮像手段が撮像する画像は、例えば災害時の画像である。

【0013】災害時の画像として、例えば地震や洪水等の現場写真やこれに付随する写真が考えられ、このような災害時の画像情報を本例のデジタルスチルカメラで撮影し、出力手段によって通信ネットワークに流すことで、本例のような通信機能を有するデジタルスチルカメラで上述の画像情報を受信し、表示手段に表示することができる。また、デジタルスチルカメラによって通信ネットワークに流された画像情報を、例えばパーソナルコンピュータで受信することもできる。

【0014】このように構成することにより、災害時の画像情報がデジタルスチルカメラやパーソナルコンピ

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ータによって容易に知ることができる。また、刻一刻変化する情報がリアルタイムで分かり、しかも機材としてはデジタルスチルカメラのみによっても緊急情報を送り、又は受信することができる。

【0015】請求項4の記載も上記請求項1記載の発明を具体化するものであり、前記撮像手段が撮像する画像は、例えば手書き文字情報である。

【0016】本例は撮像手段によって、例えば紙に書かれた手書き文字を撮影し、手書き文字そのものを画像情報として通信ネットワークに送るものである。

【0017】このように構成することにより、例えば災害時、緊急事態を知らせるべく紙に被害の場所や内容を手書きし、この手書き情報を画像情報として送信することで、極めて簡単に緊急事態を報知することができる。

【0018】請求項5の記載も上記請求項1記載の発明を具体化するものであり、前記入力手段は、例えばコンピュータから出力される画像データを入力する構成である。

【0019】すなわち、本例はパーソナルコンピュータ等のコンピュータから出力される緊急情報をデジタルスチルカメラで直接受信し、当該画像情報を表示することにより、緊急情報を知ることができる。

【0020】請求項6の記載も上記請求項1記載の発明を具体化するものであり、前記出力手段は、例えばカメラ本体に対して別体で構成されている。

【0021】このように構成することにより、デジタルスチルカメラ本体に通信インターフェイスを内蔵する装置を取り付けることによって本発明のデジタルスチルカメラを完成させることができる。

【0022】請求項7の記載も上記請求項1記載の発明を具体化するものであり、前記通信ネットワークは、例えばインターネットである。

【0023】本例は通信ネットワークとして、例えばインターネットを介して画像情報の授受を行う構成であり、インターネットを介することにより、国内だけでなく全世界に対して情報を発信することができ、例えば災害情報等をいち早く、簡単に世界に流すことができ、早急な緊急援助等の有効活用が望める。上記課題は請求項8記載の発明によれば、撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段とを有する第1のデジタルスチルカメラと、通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有する第2のデジタルスチルカメラとを具備するネットワークシステムを提供することにより達成できる。

【0024】本例はデジタルスチルカメラから送信した画像情報を、他のデジタルスチルカメラで受信して情報

の授受を行うネットワークシステムである。

【0025】このように構成することにより、パーソナルコンピュータ等の機材を要することなく画像情報や文字情報の授受を行うことができる。上記課題は請求項9記載の発明によれば、撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段とを有するデジタルスチルカメラと、該デジタルスチルカメラから通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有するコンピュータとを具備するネットワークシステムを提供することにより達成できる。

【0026】本例はデジタルスチルカメラから送信した画像情報を、パーソナルコンピュータで受信し、緊急情報等の情報をコンピュータでも受信できるネットワークシステムである。

【0027】このように構成することにより、パーソナルコンピュータ等のコンピュータの利用者でもデジタルスチルカメラから出力された災害等の緊急情報を知ることができ、情報の拡散を広く行うことができる。上記課題は請求項10記載の発明によれば、撮像手段と、該撮像手段で撮影した画像データを記憶する画像メモリと、該画像メモリに記憶した画像データを通信ネットワークに出力する出力手段と、通信ネットワークを介して供給される画像データを入力する入力手段と、該入力手段から入力した画像データを表示する表示手段とを有するデジタルビデオカメラを提供することにより達成できる。

【0028】上記請求項10から最後の請求項18までの発明は、デジタルビデオカメラに関する発明であり、構成上は上記デジタルスチルカメラと同じである。

【0029】したがって、例えばコンピュータを使用することなく、画像情報の送受信をデジタルビデオカメラ間のみで行うこともでき、更にコンピュータからの画像情報をデジタルビデオカメラに表示し、デジタルビデオカメラから出力された画像情報をコンピュータに出力することもできる。また、デジタルビデオカメラとデジタルスチルカメラ間で画像データの授受を行う構成としてもよい。

【発明の実施の形態】以下、本発明の実施形態例を図面を用いて詳細に説明する。

<第1の実施形態例>図1は、本発明の第1実施形態例を説明するものであり、第1実施形態例のデジタルスチルカメラのシステム構成図である。また、図2は本例で使用するデジタルスチルカメラ1の外観図である。尚、説明の都合上、先ず図2に示すデジタルスチルカメラ1の外観構成を説明した後、図1のシステム構成を説明する。

【0030】先ず図2において、デジタルスチルカメラ1はカメラ本体部40とレンズ部41で構成され、レン

ズ部 4 1 はデジタルスチルカメラ 1 の前面に位置するため図 2 において見えない位置である。また、デジタルスチルカメラ 1 の裏面にはビューファインダ 4 2 が位置し、レンズ部 4 1 から入力する画像データがビューファインダ 4 2 に映し出される。一方、カメラ本体部 4 0 の上面に設けられたボタン 4 3 はシャッターボタンであり、ビューファインダ 4 2 に映し出される画像を見ながら、シャッターボタン 4 3 を操作する。

【0031】また、スイッチ 4 4 は既に撮影された画像を読み出すモードの設定スイッチであり、このスイッチ 4 4 を操作すると、後述する画像メモリから画像データが読み出される。また、当該画像データの読み出しは、「+」スイッチ 4 5 を操作すると画像メモリから画像データがインクリメントされ、「-」スイッチ 4 6 を操作すると画像メモリから画像データが逆にデクリメントされ、ビューファインダ 4 2 に順次表示される。

【0032】尚、上述のスイッチ以外に、ビューファインダ 4 2 の表面には透明なタッチセンサが設けられ、必要に応じてパネル状に液晶表示される。この表示パネルには数値キーやアルファベットキーが表示され、当該表示位置にタッチすることで後述する IP アドレス等を設定する。また、ビューファインダ 4 2 の左下部にはデジタルスチルカメラ 1 の電源投入と共に、設定アイコン 4 7 と緊急アイコン 4 8 が表示される。設定アイコン 4 7 は IP アドレスの設定等のため上述の表示パネルをビューファインダ 4 2 に表示するためのアイコンであり、緊急アイコン 4 8 はイベントとして、例えば緊急時の送信処理への移行のためのアイコンである。これらのアイコンは、ビューファインダ 4 2 の当該位置を指等によって触れることにより対応する処理に移行できる。また、送信アイコン 4 9 は初期時起動しないが、緊急アイコン 4 8 を起動すると同時に表示されるアイコンである。図 1 は上述の外観構成を有するデジタルスチルカメラ 1 の回路システムを説明するシステム構成図である。

【0033】同図において、デジタルスチルカメラ 1 は写真画像を得るための CCD 撮像素子 2、写真画像を記憶するための画像メモリ 3、デジタルスチルカメラ 1 のシステムを制御するための CPU 4、及びカラーディスプレイ 5（前述のビューファインダ 4 2）、等で構成されている。CCD 撮像素子 2 は、前述のレンズ部 4 1 を介して入力する人物や風景等の画像や災害時の光景を撮影し、写真画像として記録する。また、CCD 撮像素子 2 はタイミングジェネレータ 7 のタイミング信号に同期して上述の画像データを取り込み、アナログ/デジタル変換回路（A/D 変換回路）8 でデジタルデータに変換した後、例えば RAM 9 に一旦記憶する。

【0034】CPU 4 は ROM 10 に記憶されたプログラムに従って制御処理を行い、RAM 9 のワークエリアを利用し、上述の写真画像（画像データ）の処理を行う。したがって、上述の CCD 撮像素子 2 で撮影した画

像データを RAM 9 に記憶する処理も CPU 4 の制御によって行われ、以後の処理も CPU 4 の制御によって行われる。

【0035】RAM 9 に記憶された画素データは圧縮部 22 によって圧縮処理される。尚、この時、圧縮部 22 はバイトレングスや JPEG 等の公知の圧縮処理を使用する。圧縮部 22 によって圧縮処理された画素データは画像メモリ 3 に記憶される。また、この画像メモリ 3 は 100 枚程度の画像データの記憶容量を有する。

【0036】尚、キー入力部 12 は上述のシャッターボタン 4 3、スイッチ 4 4、「+」スイッチ 4 5、「-」スイッチ 4 6、ビューファインダ 4 2 上のタッチスイッチ、等を代表して示すブロックであり、上述のボタン 4 3 やスイッチ 4 4 等を操作することによって出力される操作信号は、CPU 4 に出力される。例えば、スイッチ 4 4 を操作して画像メモリ 3 に記憶した画素データの読み出しモードが設定されると、以後「+」スイッチ 4 5、又は「-」スイッチ 4 6 の操作に従って画像メモリ 3 から画像データが読み出され、カラーディスプレイ 5 に表示される。

【0037】この時、画像メモリ 3 から圧縮された画像データが読み出され、伸張部 23 によって伸張処理された後ビデオ信号発生部 14 に出力される。ビデオ信号発生部 14 はデジタル画像信号に同期信号を付加してデジタルビデオ信号を作成する。ビデオ信号発生部 14 で作成されたデジタルビデオ信号は、デジタル/アナログ変換回路（D/A 変換回路）15 でアナログビデオ信号に変換され、カラーディスプレイ 5（ビューファインダ 4 2）に出力され、写真画像を表示する。

【0038】したがって、カラーディスプレイ 5（ビューファインダ 4 2）には CCD 撮像素子 2 で撮影した写真画像がカラー表示される。また、画像メモリ 3 に記憶した画像データだけでなく、例えばカメラの操作者は、撮影した画像を直ちにカラーディスプレイ 5（ビューファインダ 4 2）に表示し、画像を確認することができる。

【0039】一方、デジタルスチルカメラ 1 にはドライバ 16 を介して IC メモリ 17、磁気テープメモリ 18、光ディスクメモリ 19 が接続されている。これらのメモリは上述の画像メモリ 3 とは別に通信回線を通して送られてきた画像データを記憶するメモリである。

【0040】また、本例のデジタルスチルカメラ 1 は通信インターフェイス（以下、通信 I/F という）21 を介して通信ネットワークに接続されている。例えば、通信インターフェイス 21 と接続する通信ネットワークとして、例えば、LAN（Local Area Network）、WAN（Wide Area Network）、インターネット、アナログ電話網、デジタル電話網（ISDN: Integral Service Digital Network）、PHS（パーソナ

ルハンディシステム)や衛星通信などの無線通信網などである。また、これらの通信ネットワークはモデム24を介してそれぞれの通信ネットワークに接続されている。

【0041】尚、図1のシステムにおいて示すCG(キャラクタジェネレータ)11は、他のデジタルスチルカメラ、又はパーソナルコンピュータから送信された文字データをクロードキャプション処理する際使用する回路である。具体的には文字フォントで構成され、本例では1文字24×24ドット構成のビットマップフォントで構成されている。以上の構成のデジタルスチルカメラ1において、以下にその処理動作を説明する。

【0042】図3乃至図8は本例の処理動作を説明するフローチャートである。まず、図3はメインのフローチャートであり、本例のデジタルスチルカメラ1の基本処理を示す。同図において、先ずCPU4はイベントの有無を判断する(ステップ(以下、Sという)1)。ここでイベントとは、本例において地震や洪水等の災害時の場合であり、この場合例えばビューファインダ42に表示されている緊急アイコン48の位置を押下することによってイベント状態に設定することができる(S1がYES)。尚、イベント状態でない場合には(S1がNO)、通常のデジタルスチルカメラ1の使用方法に従って、例えばシャッターボタン43を操作してビューファインダ42に表示された画像を撮影し、スイッチ44を操作して画像メモリ3に蓄積した写真画像を見ることができ

【0043】一方、CPU4がイベント有りと判断する時(S1がYES)、データ受信処理(S2)又はデータ送信処理を行う(S3)。また、図3に示すタイマー割り込み処理(S4)は、上述のイベント状態においてデータ受信処理(S2)又はデータ送信処理(S3)を実行する処理であり、例えばこのタイマー割り込み処理(S4)を、5分又は10分等、に予め設定しておくことによって、その時間間隔で後述する画像データを送信し、又は画像データを受信することができる。以下、(第1の)データ受信処理、データ送信処理、(第2の)データ受信処理の順に本例の処理動作を説明する。尚、データ受信処理を上述のように2回に分けて説明する理由は、データ受信処理には操作者がキー操作して受信するコマンド受信処理と、通信インターフェイス21を介して入力する画像データの受信処理の両方があるからである。

《データ受信処理》このデータ受信処理は操作者がキー操作して受信するコマンド受信処理である。図4は本例のデータ受信処理を説明するフローチャートであり、この処理の中でコマンド受信処理は、同図の処理(S2-1)、判断(S2-2)、及び図5のコマンド解析処理が対応する。以下、具体的に説明する。

【0044】先ず、デジタルスチルカメラ1はコマンド

を受信すると(S2-1)、当該コマンドが設定コマンドか否か判断する(S2-2)。ここで、受信したコマンドが設定コマンドでなければ、次に画像情報か否かの判断に移行する(S2-3、第2のデータ受信処理)が、設定コマンドであればコマンド解析処理に移行する(S2-2がYES)。

【0045】このコマンド解析処理を詳しく説明する図が、図5のフローチャートである(S2-2')。すなわち、カメラの操作者が自らビューファインダ42の設定アイコン47を操作し、ビューファインダ42上に設定パネルを表示し、以下の設定処理を行うものである。

【0046】先ず、本体IPアドレス設定処理の場合(ケース1)：この場合には、ビューファインダ42に表示された設定パネルの対応するキーにタッチする。この処理により、IPアドレス設定コマンドがCPU4に出力され、CPU4はこのIPアドレス設定コマンドの入力によってIPアドレスの設定処理を行う。具体的には、ビューファインダ42に表示される数値キーやアルファベットキーを操作して自己のデジタルスチルカメラ1のIPアドレスを設定し、アドレスメモリ25に登録する。

【0047】次に、グループIPアドレス設定処理の場合(ケース2)：この場合にも、ビューファインダ42に表示された設定パネルの対応するキーにタッチし、グループIPアドレス設定コマンドをCPU4に出力する。CPU4はこのグループIPアドレス設定コマンドが入力すると、グループIPアドレスの設定処理を行う。具体的には複数のグループ、例えば電子メールグループ、ファックスネット(Fネット)グループ、ニフティ等の通信プロバイダグループ等にグループ分けし、個々にIPアドレスを設定する。このようにして設定されたグループIPアドレスは、アドレスメモリ25に登録される。尚、アドレスメモリ25に登録されたこれらのグループIPアドレスは、例えば後述するデータ送信処理の際、画像データを各グループに送信するために使用される。

【0048】次に、データフォーマット設定コマンド処理の場合(ケース3)、この処理もビューファインダ42に表示された設定パネルの対応するキーを操作しながら行い、具体的にはメール送信方式のフォーマットの設定や、Fネットのフォーマットの設定、圧縮方式の設定等を行う。

【0049】最後に、初期設定処理の場合(ケース4)：上述の各設定処理の後、最後に初期設定処理を行うが、この初期設定処理は、データ送信処理、データ受信処理、等の場合にも行われ、更に本例のデジタルスチルカメラ1に電源を投入した際にも実行される。具体的には、CPU4内のレジスタやRAM9に残るデータのクリア処理、CCD撮像素子2の初期電荷除去処理、前述の設定アイコン47や緊急アイコン48の表示処理、等

を行う。

《データ送信処理》以上の処理によってコマンドの指示する各種設定処理を行った後、データ送信処理を行う(図3のS3)。

【0050】図6は、このデータ送信処理を具体的に説明するフローチャートである。デジタルスチルカメラ1からのデータ送信処理は、緊急アイコン48の操作によって開始される。すなわち、災害等の緊急時の際この緊急アイコン48を操作し、データ送信処理を開始する。

【0051】先ず、画像情報の有無の判断を行う(S3-1)。この画像情報の有無の判断は、CPU4が画像メモリ3を検索し、画像メモリ3内に画像データが記憶されていれば画像情報有りと判断する(S3-1がYES)。すなわち、災害時の状況や災害の場所等が分かる画像データを撮影し、画像メモリ3に記憶させておくことにより、この画像データを読み出して画像情報の判断を行う。また、画像メモリ3に記憶する画像データは災害の状況や、災害の場所、時間等を書いた紙の撮影画像であってもよい。但し、画像メモリ3に送信すべき画像データが記憶されていない時は(S3-1がNO)、送信フローを終了し、メインの処理に戻る。

【0052】次に、CPU4は送信の有無を判断する(S3-2)。この判断はカメラの操作者が送信アイコン49を操作するか否かによって判断する。具体的には、上述の緊急アイコン48を操作することにより送信アイコン49が表示され、当該送信アイコン49を操作者が押下するか否かにより判断する。したがって、画像メモリ3に送信すべき画像データが記憶されていても、送信アイコン49が押下されなければメイン処理に戻る(S3-2がNO)。

【0053】一方、送信アイコン49が押下されると、送信指示が有ったものと判断し(S3-2がYES)、送信画像の選択を行う(S3-3)。この画像選択処理は、前述の「+」スイッチ45及び「-」スイッチ46を操作してビューファインダ42に画像を順次表示し、送信画像を選択する。このようにして選択した画像データは一旦RAM9に記憶しておく。次に、CPU4は送信先グループを選択する(S3-4)。ここで、送信先グループの選択は、アドレスメモリ25から前述のようにして登録したグループ(電子メールグループ、Fネットグループ等)のIPアドレスを読み出し、送信を希望するグループを選択する。

【0054】以上のようにして選択した送信先グループに対し、上述の選択処理(S3-3)によって選択した画像データを送信する(S3-5)。具体的には、上述のようにして選択した送信先グループのIPアドレスを読み出し、当該アドレスに対して選択した画像データを送信する。すなわち、画像メモリ3から読み出した画像データ通信ポート21を介してインターネット等の通信ネットワークに出力する。

《データ受信処理》次に、上述のようにして送信された画像データの受信処理について説明する。

【0055】この処理は、前述の図4の判断(S2-3)、(S2-4)、及び図7と図8のフローチャートで説明する処理である。先ず、デジタルスチルカメラ1はコマンドが入力すると(S2-1)、前述の設定コマンドか否かの判断をおこない(S2-2)、この場合設定コマンドではないため、更に画像情報か否かの判断を行う(S2-3)。ここで、画像情報であると判断すると、図7に示すフローチャートに移行する。

【0056】すなわち、CPU4は通信I/F21を介して入力する画像情報を受信すると(ステップ(以下STで示す)1)、RAM9に入力した画像情報を格納する(ST2)。次に、入力した画像情報のヘッダ情報をビューファインダ42に表示する(ST3)。このヘッダ情報には、誰が何処から何枚の画像データを送ったか分かる情報が含まれている。したがって、受信側ではビューファインダ42に表示されるヘッダ情報を確認することにより、受信した画像データを表示するか判断する(ST4)。

【0057】ここで、画像情報を表示すると判断すれば(ST4がYES)、RAM9に一旦格納した画像データをビデオ信号発生部14に出力し、D/A変換回路15を介してカラーディスプレイ5(ビューファインダ42)に画像情報を表示する(ST5)。また、表示した画像データは画像メモリ3に登録する。尚、表示が不要であると判断する場合には(ST4がNO)、再度クリアの確認を行った後(ST6)、RAM9に格納した画像データを消去する(ST7)。

【0058】以上のようにビューファインダ42に入力した画像情報を表示することにより、デジタルスチルカメラ1の所持者はカラーディスプレイ5(ビューファインダ42)に表示される画像を見て、例えば表示された内容が災害の情報であれば、直ちに災害の状況を知ることができる。例えば、図8(a)はデジタルスチルカメラ1のビューファインダ42に映し出される上述の災害時の画像の例であり、送信者がデジタルスチルカメラ1で撮影した画像を受信してビューファインダ42に表示したものである。したがって、受信者はこの火災の画像を見ることによって災害の発生や災害の状況を直ちに判断することができる。

【0059】また、送信者は手書き文字を紙に書き、その手書き文字をデジタルスチルカメラ1で撮影し、送信することもできる。例えば、同図(b)はその一例を示す図であり、前に送った画像データに関する災害発生の場所や状況、時間等を手書き文字で送るものである。このことにより、災害の発生場所や状況等をより詳細に知ることができる。

【0060】一方、データ受信処理において文字情報を受信する場合もある。図4の判断(S2-4)の処理で

ある。例えば、前述のデジタルスチルカメラ 1 が画像データと共に文字情報も送信する場合や、いわゆるクロードキャプション方式により通信サービス業者から情報が送られてくる場合である。この場合、CPU 4 は文字情報の入力であると判断すると (S2-4 が YES)、図 9 に示すフローチャートに従った処理を実行する。

【0061】すなわち、CPU 4 は通信 I/F 21 を介して入力する文字情報を受信し (ステップ (以下 STP で示す) 1)、RAM 9 にこの文字情報を一旦格納する (STP 2)。次に、CPU 4 は入力した文字情報をグラフィック化する (STP 3)。このグラフィック化処理は、RAM 9 に格納した文字情報を読み出し、文字情報の解析を行い、例えば文字コードに対応するビットマップデータを CG 11 から読み出すことにより、例えば 1 文字 24×24 ドット構成の文字情報とする。

【0062】次に、CPU 4 はグラフィック化した文字情報と画像データをドッキングするか否かを判断する (STP 4)。ここで、文字情報と画像データを合成しないならば文字情報のみを表示する (STP 4 が NO)。一方、文字情報と画像データを合成するならば (STP 4 が YES)、CPU 4 は画像データの選択処理を行う (STP 5)。この選択処理は前述の説明と同様、キー操作により画像メモリ 3 から画像データを 1 枚ずつ読み出し、ビューファインダ 42 に表示しつつ選択する。

【0063】上述のようにして選択した画像データは上述の文字グラフィックデータに追加され、合成した形態で例えば画像メモリ 3 に記憶される。そして、上述の合成画像を表示するか否かを前述と同様に、ヘッダ情報によって判断し (STP 7、STP 8)、合成画像を表示する場合には (STP 8 が YES)、RAM 9 に記憶した合成データをビデオ信号発生部 14 に出力し、D/A 変換回路 15 を介してカラーディスプレイ 5 (ビューファインダ 42) に表示する (STP 9)。一方、表示が不要であれば再度クリアの有無を確認し (STP 10)、RAM 9 から対応する合成データを削除する (STP 11)。

【0064】上述のようにして、カラーディスプレイ 5 (ビューファインダ 42) に合成画像情報を表示することにより、デジタルスチルカメラ 1 の所持者は更に詳しい災害の状況を知ることができる。例えば、図 10 はビューファインダ 42 に映し出された合成画像の例を示す図であり、送信者がデジタルスチルカメラ 1 で撮影した画像とともに、災害の場所や状況を文字表示するので、災害の詳しい状況を画像と共に知ることができる。尚、文字表示はテロップとして流す構成としてもよい。

【0065】以上説明したように、本実施形態例のデジタルスチルカメラは、災害時等に電話器やファックス装置がない場合でも、また回線が切断している場合には無線機能を利用して、デジタルスチルカメラから直接インターネット等の通信ネットワークに接続し、画像データ

等を送信することができる。

【0066】したがって、例えば緊急時に必要な画像や文字情報等を電子スチルカメラ 1 から直接指定したアドレスの相手先に送信することができ、緊急時の情報の拡散を容易に図ることができる。このことにより、災害等の緊急時に情報を的確に送信でき、特にインターネットを利用することにより、同時に全世界に情報を送信することができる。

<第 2 の実施形態例>次に、本発明の第 2 実施形態例について説明する。

【0067】本例はデジタルスチルカメラ本体に通信インターフェイスを有する構成ではなく、通信インターフェイスを別体の装置とする構成である。

【0068】図 11 は、上記第 2 の実施形態例を説明するシステム構成図である。本例と上述の第 1 の実施形態例との構成上の相違は、デジタルスチルカメラに通信インターフェイスを内蔵した通信装置 33 が接続されている点である。したがって、デジタルスチルカメラ 1 は画像を得るための CCD 撮像素子 2、画像データを記憶するための画像メモリ 3、デジタルスチルカメラ 1 のシステムを制御するための CPU 4、及びカラーディスプレイ 5、等で構成されている点は前述の第 1 の実施形態例と同じである。しかし、入出力ポート 32 を介して通信装置 33 と接続され、更に通信装置 33 がインターネット等の通信ネットワークに接続されている点で異なる。

【0069】すなわち、通信装置 33 には不図示の CPU、ROM、RAM、等が内蔵され、ROM には前述の図 4、図 6、図 7、図 9 に示したフローチャートに従った処理を行うプログラムが登録されており、このプログラムを CPU が読み出してデータ送信処理、又はデータ受信処理を行う。

【0070】したがって、デジタルスチルカメラ 1 本体が行うメインの処理 (図 3 のフローチャート) に従って、例えばデータ送信処理が選択されると (S3)、通信装置 33 は ROM から図 6 に示す処理を実行するためのプログラムを読み出し、画像データの送信処理を行う。一方、メインの処理 (図 3 のフローチャート) に従って、例えばデータ受信処理が選択されると (S2)、ROM から図 4 及び図 7、図 9 に示す処理を実行するためのプログラムを読み出し、画像データの受信処理を実行する。

【0071】したがって、このように構成することによっても、例えば緊急時に必要な画像や文字情報等を電子スチルカメラ 1 から通信装置 33 を通して指定したアドレスの相手先に送信することができ、緊急時の情報の拡散を容易に図ることができる。このことにより、災害等の緊急時に情報を的確に送信でき、特にインターネットを利用することにより、同時に全世界に情報を送信することができる。尚、上述の 2 例の実施形態例では、デジタルスチルカメラを用いた画像データの送受信処理につ

いて説明したが、デジタルスチルカメラに限らずデジタルビデオカメラを使用して緊急時の画像データの送受信処理を行ってもよい。この場合には、CCD撮像素子2で撮影した画像データがビデオテープに記録される点を除き、図1又は図11のシステムを使用することができる。

【0072】また、上述の実施形態例の説明として、イベントの意味は災害の発生としたが、災害の発生に限定されるものではなく、あらゆる状況をイベント発生の条件とすることができる。

【0073】さらに、前述の送信処理の際、音声データを同時に出力する構成としてもよく、例えば緊急事態の際、受信側では画像情報と共に対応する状態の音声も流れ、画像と音声が重複した形で情報が供給され、的確に災害等のイベントの状況を把握することができる。

【発明の効果】以上説明したように本発明によれば、以下の効果を得ることができる。

【0074】本発明によれば、デジタルスチルカメラのみにより情報の送受信ができるので、パーソナルコンピュータを使用する場合に比べてケーブルの接続や、ソフトウェアの互換性、マウス操作、等の複雑な操作を必要とせず、従来のカメラを扱うように操作できる。

【0075】また、文字情報でも、手書き情報でもカメラで撮像することにより、画像情報としてとらえ、災害等の情報をより簡単に画像データとして送信することができる。

【0076】また、簡単な操作で情報を送信できるので、災害時のみならず、耳や言葉の不自由な聾啞者でも簡単に操作でき、本例の電子スチルカメラは福祉面でも利用することができる。

【図面の簡単な説明】

【図1】第1実施形態例のデジタルスチルカメラのシステム構成図である。

【図2】実施形態例で使用するデジタルスチルカメラの外観図である。

【図3】実施形態例のデジタルスチルカメラの処理動作を説明するメインのフローチャートである。

【図4】データ受信処理を説明するフローチャートである。

【図5】コマンド解析処理を説明するフローチャートである。

【図6】データ送信処理を説明するフローチャートである。

【図7】画像情報の受信処理を説明するフローチャートである。

【図8】(a)は画像情報の受信画面の一例を示す図で

ある。(b)は文字情報の受信画面の一例を示す図である。

【図9】文字情報の受信処理を説明するフローチャートである。

【図10】画像情報と文字情報を合成したの受信画面の一例を示す図である。

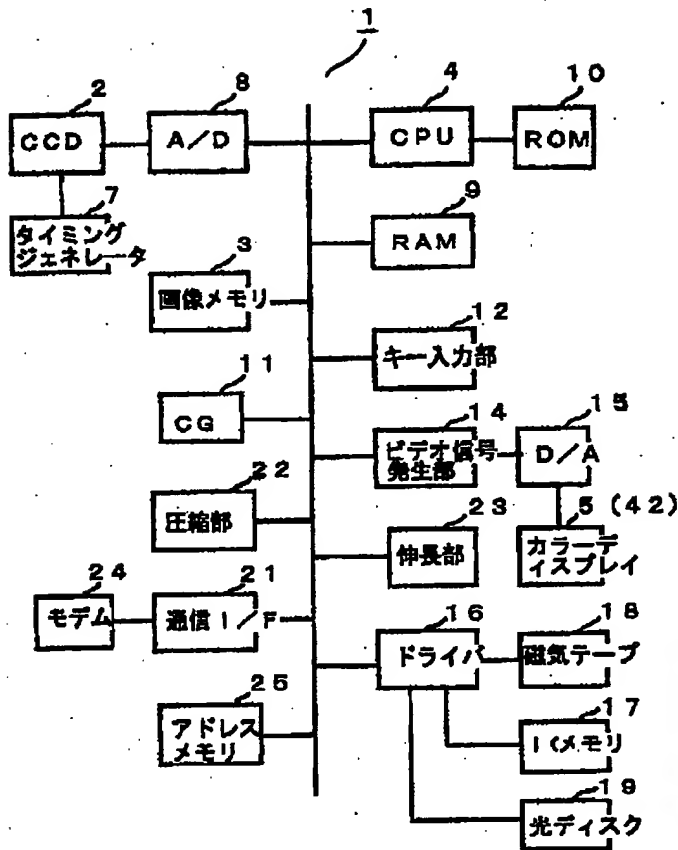
【図11】第2実施形態例のデジタルスチルカメラのシステム構成を示す図である。

【図12】一般的なインターネットへの接続構成を示す図である。

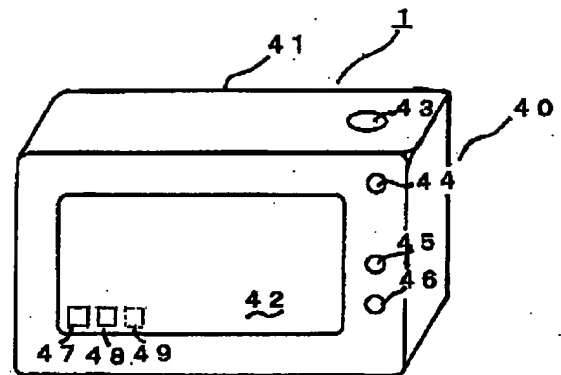
【符号の説明】

- 1 デジタルスチルカメラ
- 2 CCD撮像素子
- 3 画像メモリ
- 4 CPU
- 5 カラーディスプレイ
- 7 タイミングジェネレータ
- 8 A/D変換回路
- 9 RAM
- 10 ROM
- 11 CG
- 12 キー入力部
- 14 ビデオ信号発生部
- 15 デジタル/アナログ変換回路
- 16 ドライバ
- 17 ICメモリ
- 18 磁気テープメモリ
- 19 光ディスクメモリ
- 21 通信インターフェイス
- 22 圧縮部
- 23 伸張部
- 24 モデム
- 25 アドレスメモリ
- 32 入出力ポート
- 33 通信装置
- 40 カメラ本体部
- 41 レンズ部
- 42 ビューファインダ
- 43 ボタン
- 44 スイッチ
- 45 「+」スイッチ
- 46 「-」スイッチ
- 47 設定アイコン
- 48 緊急アイコン
- 49 送信アイコン

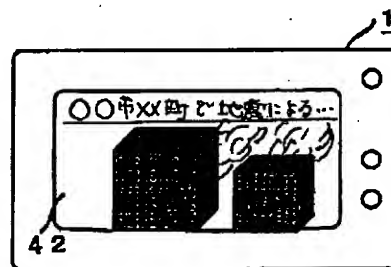
【図1】



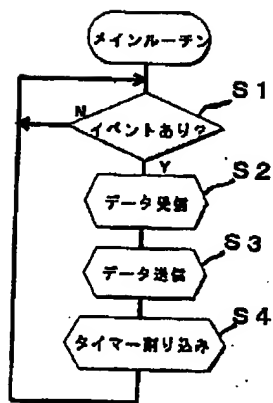
【図2】



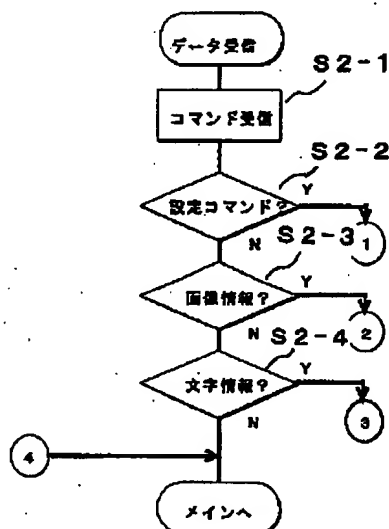
【図10】



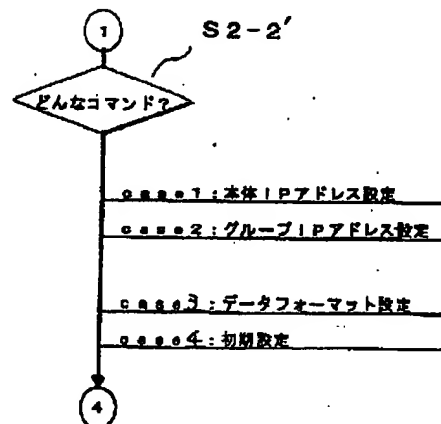
【図3】



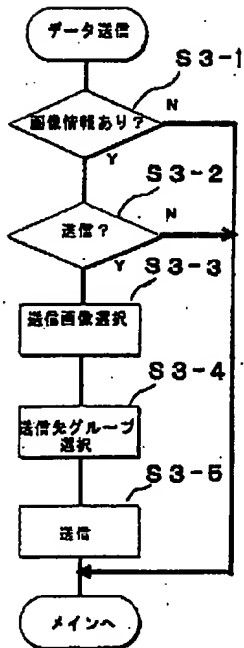
【図4】



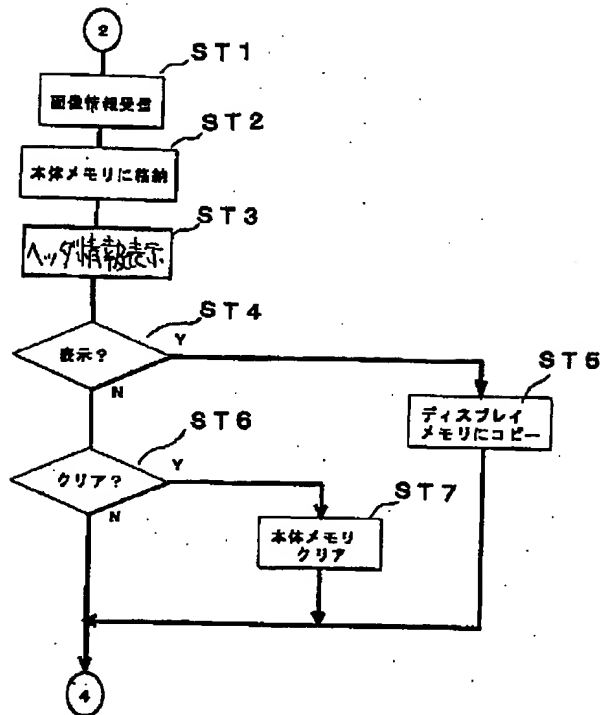
【図5】



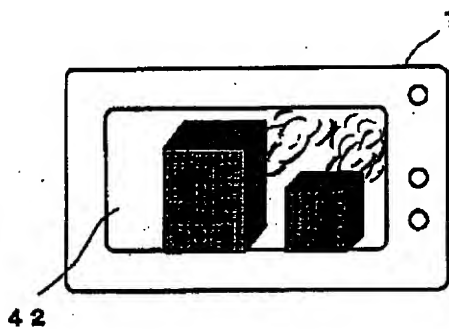
【図6】



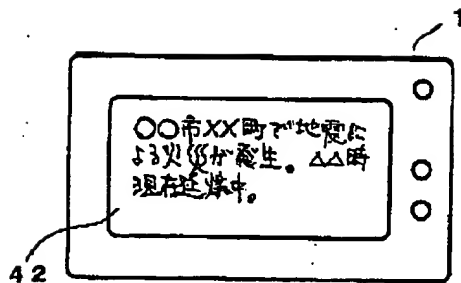
【図7】



【図8】

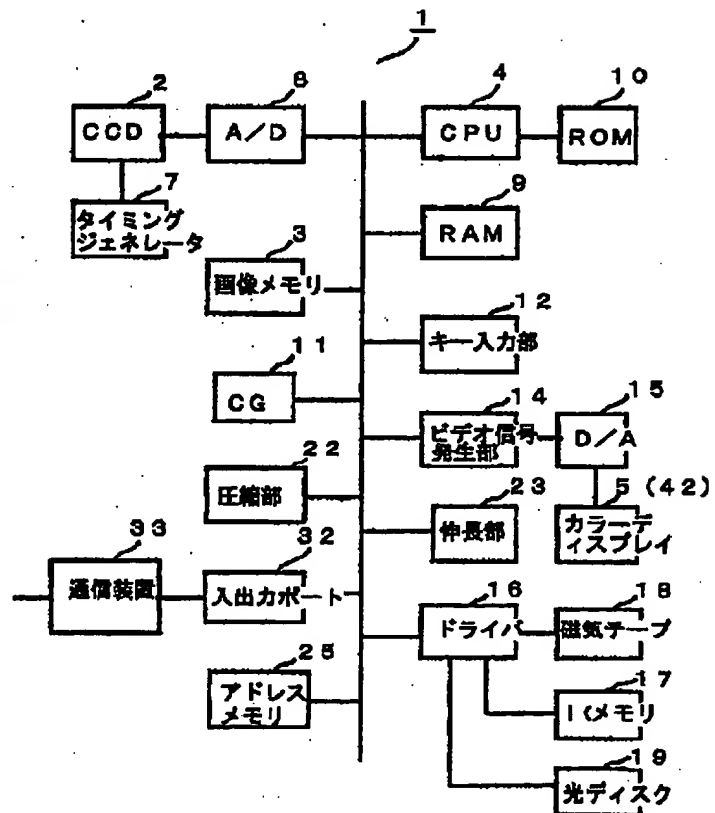


(a)

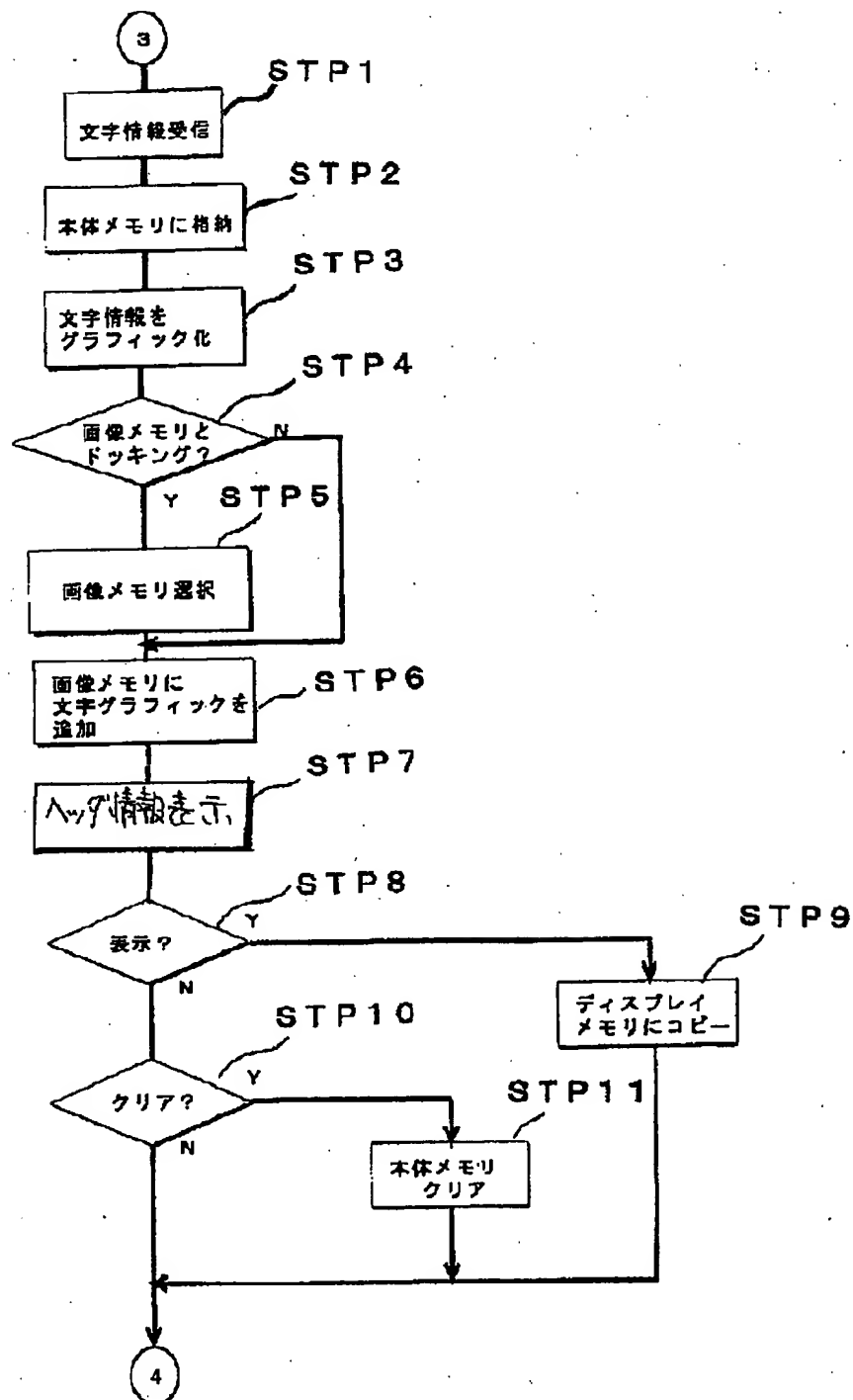


(b)

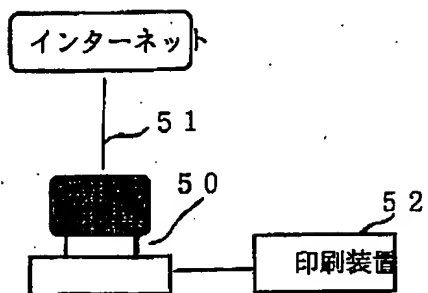
【図11】



【図9】



【図 1 2】



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